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MOTOR AGE

VOLUME XXI CHICAGO, JUNE 20, 1912 NUMBER 25

"My Maxwell has given better service than the $8,000 cars of my friends"

An owner who has just bought his fourth Maxwell car told us that he had driven 37,000 miles and in six years had never been stalled on the road, never been seriously delayed even by tire trouble, never had a broken part except one which was his own fault, had practically no repair expense and maximum service at minimum cost.

Maxwell "Special" $1480 Fully Equipped, including Self-starter

Experiences like this are common. They explain why Maxwell cars are used by 55,000 owners, by 17,000 physicians who must have reliability at any cost, by 6,000 salesmen in 2,800 businesses who must have economical service; in short, by everyone who wants maximum service at minimum price. We want you to ride in the "Special." Telephone for appointment or send for our Catalogue de Luxe and other literature describing the Maxwell models.

Other Models

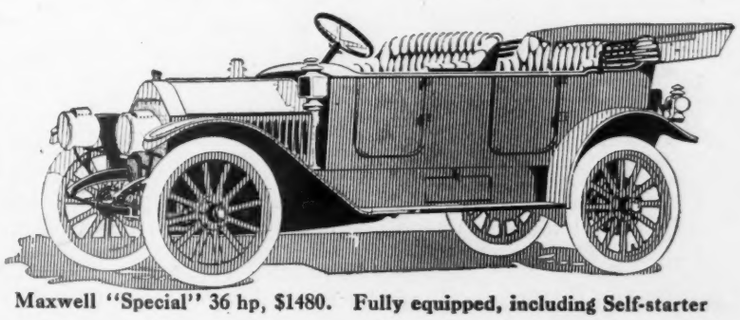
Maxwell "Mercury" Roadster, 30 horsepower, $1150.

Maxwell "Mascotte" Touring Car, $980.

Maxwell "Mascotte" Roadster, $950.

Maxwell "Messenger" Roadster, $625.

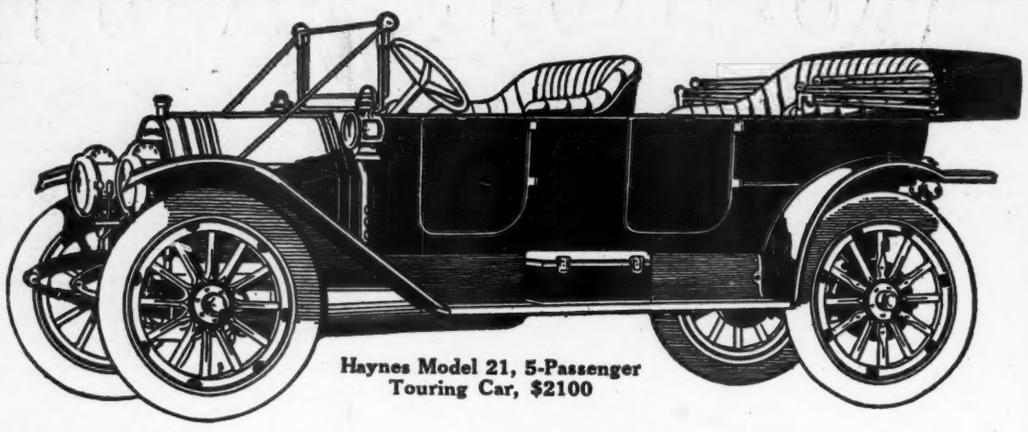
All prices f.o.b. Factory.



Maxwell "Special" 36 hp, $1480. Fully equipped, including Self-starter

United States Motor Company

4 West 61st St., New York There is a Maxwell Dealer in Your Vicinity



Haynes Model 21, 5-Passenger
Touring Car, $2100

Uniform Strength Throughout

The HAYNES Car

Like a chain, which is as strong as its weakest link, a motor car is as durable as its weakest part. The car may have a splendid motor, a fine clutch, a good transmission, a strong frame and a perfect oiling system but if the axles are not right the dependability and the serviceability are weakened and the life of the car is lessened.

There are no weak parts in Haynes Construction.

Nineteen years of automobile designing experience eliminates the possibility of a weak part. A new and model plant with every modern facility for tested accuracy and proved efficiency, makes it quite impossible for any part of the Haynes car to be weak or inferior.

An organization of skilled mechanics, each trained in some specialized part of the work of Haynes construction and Haynes testing, cannot permit of a weak part finding its way into a Haynes car.

Consider Haynes axles for instance. And in no other part of a car is there need for greater assurance of strength! In the nineteen years of our automobile building experience and in all the history of the thousands and thousands of Haynes cars that have been in constant use we have no record of a broken axle on one of these cars, due to inferior material or workmanship.

Isn't that an assurance, and insurance for the future?

Throughout the Haynes you will find this uniform strength, the same care in selection of material, the same skilled and careful workmanship, that makes of every Haynes a car of satisfaction and pleasure to the owner.

The Haynes factory is always open to visitors and inspection of every detail of Haynes construction will be gladly demonstrated and explained.

HAYNES AUTO CO., Dept. N, Kokomo, Ind.

MOTOR AGE

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Volume XXI JUNE 20, 1912 No. 25

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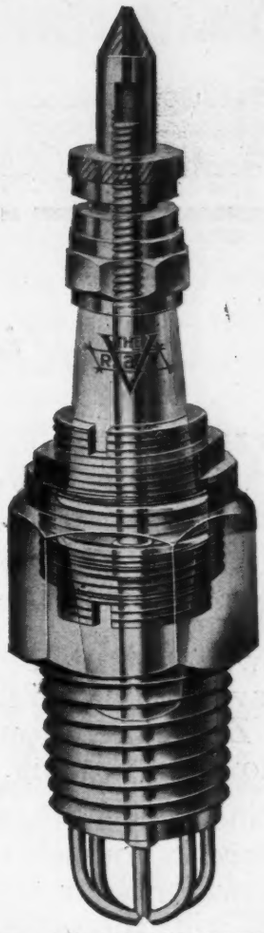
THE V-Ray



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"GUARANTEED FOR LIFE"
(Porcelain and All.)

The way to make a spark plug steadfastly popular is to make it everlastingly good.

V-Ray workmanship and materials so closely approach the superlative that when you get a V-Ray Spark Plug you are assured it will grant you a lifetime of service.

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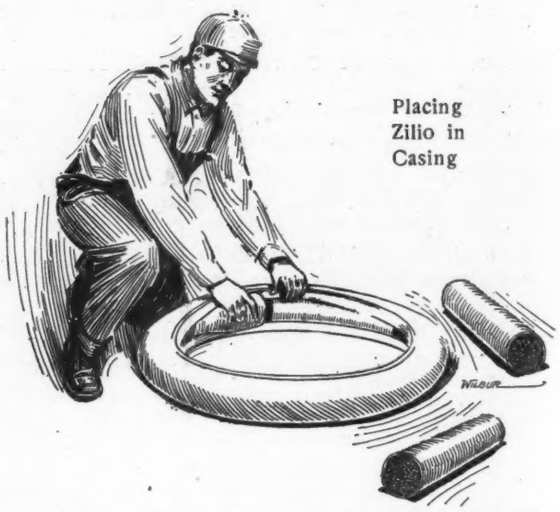
ZiLiO

Rides like air: Ends tire care

YOU OWE it to yourself to investigate Zilio. If Zilio puts an end to punctures and blowouts—to all tire troubles, you certainly want to know about it. If Zilio doubles the mileage of casings and does away with inner tubes, it means a saving you don't want to overlook. If Zilio can cut your tire repair expense down to nothing, you want Zilio.

Zilio does all these things. You can ***prove*** it yourself at our risk. Send now for your free sample of Zilio. It will show you just what Zilio looks like. Get our 60 day free trial offer. Write now.



Placing Zilio in Casing

The illustration shows one of the steps in installing Zilio in casings, also the "logs" in which form Zilio comes. Installing Zilio is easy. You can do it yourself, or your repair man can do it. We furnish all necessary tools to purchasers located where we have no agent.

Secure This Profitable ZiLiO Agency

A LIVE business man will recognize the unequalled opportunity that Zilio offers. Every car owner who has ever paid a tire bill or changed a tire on the road is glad to give Zilio a trial. Every mail brings us inquiries from all over the United States. You should see the cars lined up in Chicago, waiting to have their tires filled. It would help you realize what an unequalled opportunity there is in Zilio.

Just now we need men to act as distributing agents. They must be keen business men, progressive and quick to act. Investment required, $2,500 or more, depending on location. It will pay you to investigate this proposition. If in your whole territory, with local agents working under you, you fill the tires of only one car a day, it means a *net* profit to you of $6,000 a year. How much more than that you can make depends altogether upon you. When you become distributor for us we shall turn over to you all the prospects we have secured in your territory. This will give you some business to *close* right away. If you want to establish a big paying, permanent business, write now for Zilio Agency Proposition and sample of Zilio. If you are in earnest it's worth a trip to Chicago so as to close arrangements sooner.

ZiLiO Sales Co., 3261 South Park Ave., Chicago

VOL. XXI, No. 25 CHICAGO, JUNE 20, 1912 $3.00 PER YEAR

MOTOR AGE

Speedway, World's First Horseless City

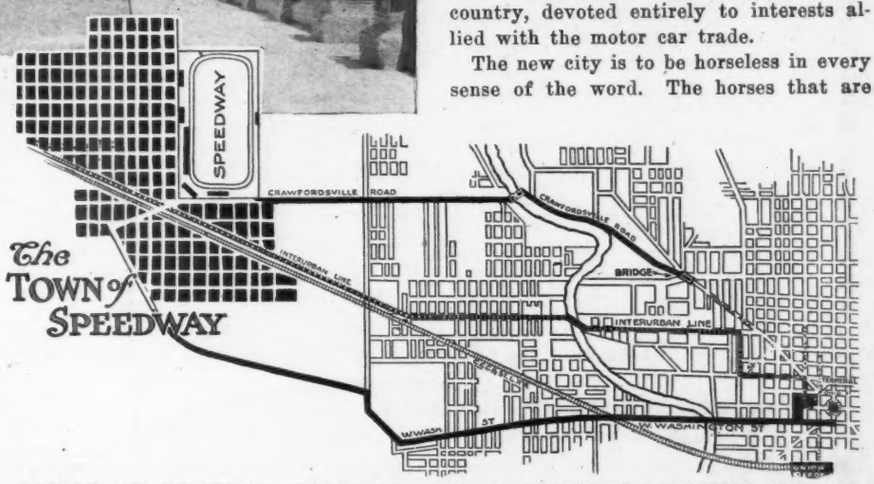
Manufacturing Town Just Established Near Indianapolis Bars Equines

By C. L. Cummins

INDIANAPOLIS, Ind., June 17.—Indianapolis has scored again, its progressiveness and ability to keep abreast of the times being well illustrated by the fact that within the confines of the Hoosier state—at the very doors of Indianapolis in fact—is located the first horseless city in the world—Speedway, a town recently laid out and on which the actual construction work has just started. By fall the new city will be well under way and within a few years it is expected it will be one of the principal industrial cities in the country, devoted entirely to interests allied with the motor car trade.

The new city is to be horseless in every sense of the word. The horses that are aiding in their humble way in the building of the city, will not be permitted to enter the gates of Speedway after the city has been completed. Men at the city's gates will turn back the horse that tries to enter, but the man with the motor car will be welcome.

Every manufacturer who locates his factory in the new city will find in the deed to his property a clause providing that all hauling must be done with motor trucks; the retail grocer and the butcher and the baker who enters into business in



BRIDGE AND DRIVEWAY LEADING FROM INDIANAPOLIS TO SPEEDWAY AND MAP SHOWING ITS LOCATION

By J. C. Burton

Hail now the Speedway city, horseless urb!
Hail now the hardy builders! Wish them luck.
(Let no one tethered Pegasus disturb—
I write this ode astride a motor truck.)
Let Progress now pursue her cogent course,
Since equine relics at the gate are barred:
They've put a stern embargo on the horse
And all our fond traditions will be jarred.

The feed store keeper deals in gasoline,
The hose cart driver wears a chauffeur's suit,
The postman makes his rounds in a machine,
The curfew bell is but a honk! honk! toot.
The preacher finds a text in motor's throb,
Fits Writ to the conditions which are new:
"Help some poor brother with a tire job;
Do unto others as you'd have them do."

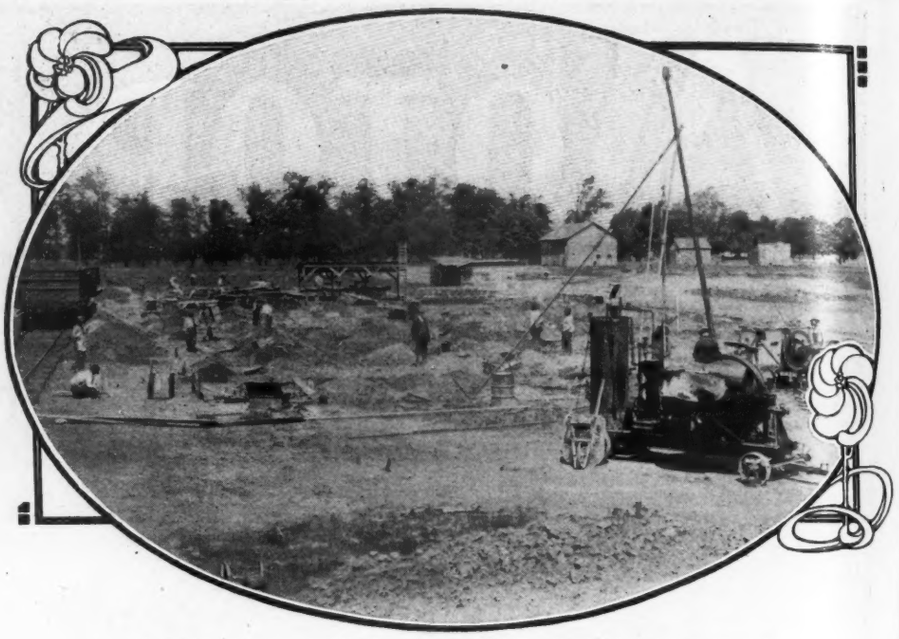
"Black Beauty" is not found upon the shelf
Of Speedway's contemplated library—
A monument erected with the pelf
Amassed by astute Andrew Carnegie.
And also tabooed by the village board,
The stirring verses 'bout "The One Hoss Shay."
Instead we find "The Life of Henry Ford"
And "Memoirs of the Driver, Chevrolet."

'Tis circus day, the gay equestrienne
Must change her mount to show in Speedway town
And, dancing on a roadster painted green,
Do some bare-chassis riding with the clown.
Suppose a savage horde should make attack:
A chieftain bring the city to its knees,
Speedway's Godiva then would do her act
In goggles, without cloak, cap and puttees.

Speedway will find a similar provision in his deed or contract.

The fire department, which will be established within the course of time, will be wholly equipped with motor apparatus; the luckless inhabitant who is arrested will be hauled to police headquarters in a motor car; the streets will be swept with motor equipment and the rubbish and trash will be carried away by motor trucks. The garbage will be collected in motor vehicles.

Speedway will be governed by men identified with the motor trade. Its mayor and other officers will be recruited among the employes and employers of the factories that are to locate in the city. The streets and the courts, avenues and squares, which will be on an elaborate scale, will be named after men in the motor trade. Among those who will be so honored will be Haynes, Selden, Olds, Ford and Winton and others who have helped to build up the motor industry.



BEGINNING THE WORK ON SPEEDWAY, THE HORSELESS TOWN

For the Motor Industry Alone

In line with the policy of a horseless city, no factory will be admitted to Speedway unless it is identified in some way directly with the motor car trade. The factories, which will employ thousands of men, recruited from the most skilled mechanics in America, and that means in the world, will manufacture motor cars, motors, tires, parts, carbureters, etc.

Speedway will be located about 2 miles west of Indianapolis, along the Crawfordsville road. The principal part of the city will be directly south of the Indianapolis motor speedway, while a part of the new city will be west of the speedway. Much of the construction work will be completed this year, but it will, of course, be several years before the city has attained the population of from 10,000 to 15,000 that is predicted.

The project is not altogether a money-making scheme. It is a part of a dream Carl G. Fisher and James A. Allison have long cherished—to see a city devoted entirely to the motor industry, a fireproof city, a city of comfort and an ideal city in every respect. It is not a scheme to merely sell lots and profit by exploiting the small investor. Speedway will be an actual reality, with the factories built and in operation before the small investor is invited to buy, and then only the employes in the factories will be induced to buy homes.

In addition to being the only horseless city in the world, it will be the first fireproof city of concrete construction on the globe. Every factory building and garage will be of reinforced concrete and steel, built by the pouring process. The business houses and the dwellings will all be of concrete, built also by the pouring process. The roofs will be of tile or other fireproof material. While there will be a fire department, one of the most modern in the world, it is predicted it will have little work to do.

Deal Quietly Put Through

The foundation of Speedway was laid several months ago, when Fisher and Allison quietly bought 1,000 acres of land. They have since taken options on 700 additional acres of land, which, it is expected, will be needed in carrying out the plan for the new city.

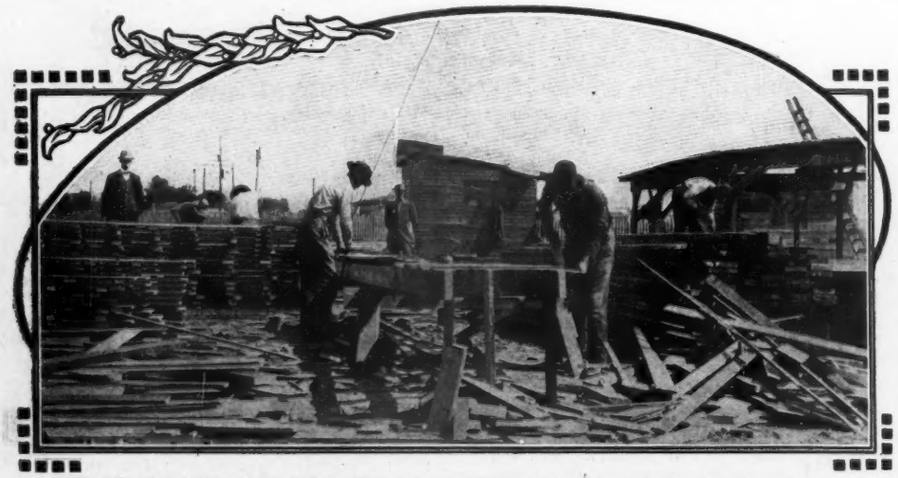
The railroad companies have such confidence in the future of the city that they have already built tracks into the site of Speedway. The New York Central lines and the C. H. and D. railroad companies have built spurs into the site. The Ben Hur electric interurban line has established a station at the site. Within a few years it is probable the lines of the Indianapolis Traction and Terminal Co. will be extended to the new city.

Thus far Fisher and Allison have not decided how much they will spend in building the city. They are determined to spend all that is necessary to bring about a realization of their dream, which, incidentally is regarded as a sound business proposition. An expenditure of $1,000,000 in the building of Speedway would be a conservative estimate.

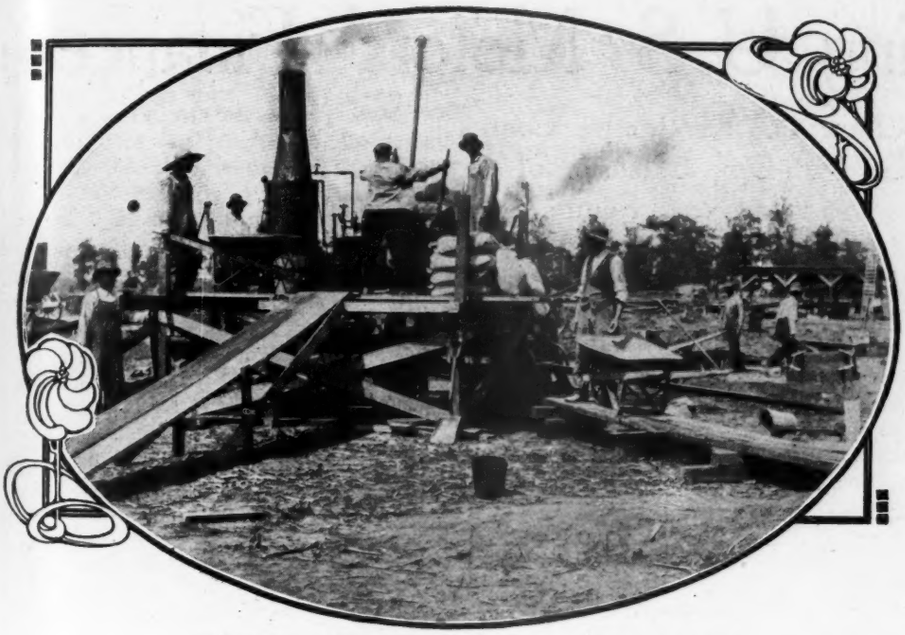
Every street in the new city is to be paved almost immediately and every street will have broad and ample cement walks. There will be parkways in the center, with fountains. There will be parks and courts and squares. Practically every factory will have an ample recreation ground for its employes. The best landscape architects in the country will be employed to aid in carrying out the scheme.

All Conveniences Promised

The city will be one of modern homes, which again will be an innovation in the building of cities, for it is doubtful if there is a city in the world where every home has all modern conveniences. These homes are to built from exclusive architectural designs and they are to be offered to the workmen of the city on an easy payment plan. Ultimately most of the employes of the Speedway factories will own their own homes. Thrift among the workmen is to be encouraged in every way possible.



MAKING FORMS FOR CONCRETE CONSTRUCTION ON NEW PREST-O-LITE PLANT



CONCRETE MACHINES AT WORK IN SPEEDWAY CITY

Unique loading stations will be provided at every factory. The tracks will be depressed so that the floor of the car will be on a level with the first floor of the factory, thus facilitating the handling of freight. Where freight must be hauled to and from the freight depots, it will be done by motor trucks.

The city will be surrounded by a cement wall with artistic gates at the entrances. It will be, probably, the only city in the United State entirely surrounded by walls after the old Chinese and Roman idea. These gates will be attended by liveried employes of the city, whose duty, largely, will be to see that the rule prohibiting the entrance of any horse into Speedway is not violated.

It is believed that this rule in Speedway will have the effect of increasing the use of motor trucks in Indianapolis, for it is to be presumed that the Indianapolis business houses will sell much stuff to the residents of Speedway. The only way they will be allowed to make deliveries, however, will be by means of motor trucks.

From the point of economy in municipal administration, the city of Speedway will be watched by the municipalities of the whole country. It is believed that the no-horse rule will result in comparatively clean streets and in a minimum wear on the pavements. It is the plan of the promoters to make Speedway one of the show places of the middle west.

Safeguarding the City

Within the course of time, a number of magnificent hotels will be built and these will be used at times in accommodating the visitors to the race meets at the Indianapolis motor speedway. There will be numerous immense fireproof garages to accommodate the motor cars of the residents of the city and of its visitors, of whom it is expected there will be many.

The first factory buildings that will be built, the construction of which has been started, will be the new plant of the Prest-O-Lite Co. There will be twelve buildings in the Prest-O-Lite group, and $250,000 is being spent in the construction of the plant, which will employ about 300 workmen, besides the office force. Here will be concentrated the two factories now at Milwaukee for the manufacture of the Prest-O-Lite tanks; the gas manufacturing plants now located south of Indianapolis and the charging station and general offices now located in this city.

Promises of the Future

There will be every precaution for safety in the new plant. The buildings will range from 300 feet by 300 feet in size, to garages for the trucks that will haul the Prest-O-Lite product. It will be one of the most modern factories in the world, with every convenience for the comfort and safety of employes of the company.

It is designed to make Speedway a city within itself and any effort to annex it to Indianapolis probably will be resisted in a vigorous manner. It will make its own ordinances and among these will be one regulating the speed of motor vehicles, which, it is expected, will be a model of its kind, providing a moderate rate of speed.

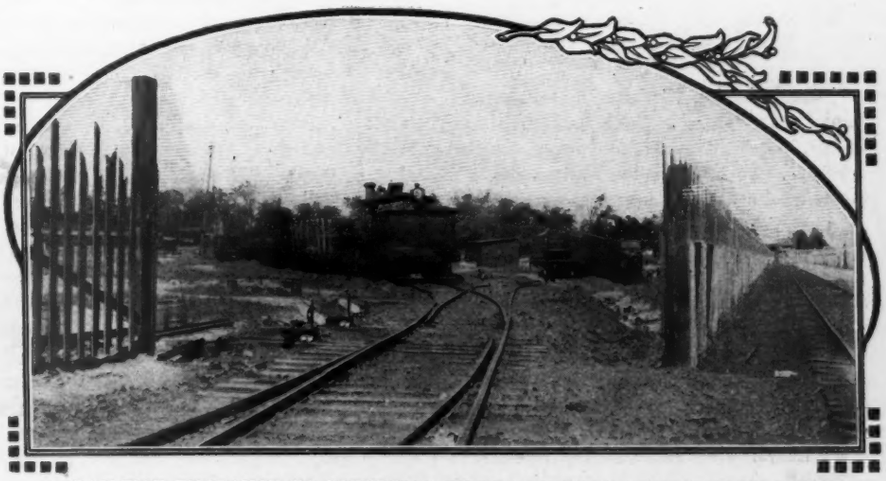
A number of factories identified with the motor and allied trades have already arranged to build in the new city. Thus far six parts concerns, two motor car manufacturers and a large tire factory have closed contracts for sites in Speedway. It is expected several additional contracts will be closed shortly and that construction of many of the buildings will be completed this year.

At the present time Fisher and Allison are not at liberty to disclose the names of the concerns, other than their own, that will locate in the city. There are many reasons for this. If it were known that some of the concerns are about to move, it is feared it might cause some difficulty in retaining employes who do not wish to move, until the time arrives for the removal.

Prospective Tenants

When the Speedway project was first announced some time ago, it was reported the Ideal Motor Car Co. might be one of the concerns to locate in the new city. This company manufactures the Stutz and within a short time will find it necessary to obtain additional manufacturing facilities. Another concern, it was reported, might locate in the new city is the Miller Carbureter Co., which recently moved to this city from California. The Prest-O-Lite buildings will be ready for occupancy about November 1.

Fisher and Allison, within the last few years, have become among the most prominent figures in the motor car trade. A few years ago Fisher conducted a small bicycle repair shop in this city. He obtained the first motor car agency in the city and when he took it he declared that the motor vehicle, within a short time, would become the leading means of transportation in the world and he has seen his belief verified.



RAILWAY ENTRANCE TO SPEEDWAY WHICH REFUSES ENTRANCE TO HORSES

Strong Handling U. S. Motors' Finances

Big Corporation Chooses New Chairman of Executive Committee—Principal Creditors Give 90-Day Extension of Time on Paper Due Now and in Near Future

NEW YORK, June 17—W. E. Strong, brother of Vice-president Strong of the Bankers' Trust Co., has been elected to membership in the board of directors of the United States Motor Co. and will have direct charge of the financial affairs of the company. He will act as chairman of the executive committee.

An advisory committee has been selected to assist the management of the corporation and to work in conjunction with the financial ideas of Mr. Strong. It has been announced on behalf of the company that an extension of time for 90 days has been secured from the principal creditors holding United States Motor paper that is falling due at present and which will mature in the near future. The amount is reported to foot up to about $750,000.

Since April 1 the company has broken all its records for large business and is rapidly claring its warehouses of the fag-end of the 1912 stock. It has been stated that the total manufacturing business of the year has reached the enormous total of 22,000 cars and that there are only a comparatively few cars of one model still in stock. The company's current receipts have been enormous and the rumors that have been floated have proved a surprise to many in the industry and out of it.

At headquarters an optimistic view of the matter is held. There it is stated that the 90-day extension granted by the creditors will be sufficient to carry the concern over the contract-making period for 1913 and that with the clearance of the loose ends of the 1912 business the company will be able to fund itself. The creditors' list includes the following financial houses: Bankers' Trust Co., Chase National Bank and Moseley & Co. In future all ordered goods will be paid for in cash.

Mr. Strong, on behalf of the United States Motor Co., has made the following announcement:

"The situation that confronts the company is to conserve its interests so that it can finance its manufacturing operations for 1913. To this end the company is now devoting its attention and the banks and merchandise creditors have joined hands in the endeavor.

"I will not state the approximate amount of immediate indebtedness, but will say that the difficulty in which the company finds itself is due largely to the fact that the motor industry is one of seasons. The present extension of time on the commercial paper is designed to carry over the company during the season of returns from the selling."

It is understood that the bank loans involved in the extension were for notes discounted to carry on manufacturing and to purchase parts that go into the cars turned out by the company. It is also said that the merchandise accounts are not large, because of the fact that a portion of them have been taken up with the cash secured from discounting the notes.

The company will continue operation without interruption in factory activity. Some of the principal stockholders are: A. N. Brady, James C. Brady, J. S. Bache, Caroline W. Astor, Benjamin Briscoe, Samuel P. Colt, Thomas F. Ryan, Herbert L. Satterlee, Harry Payne Whitney and Richard Irvin.

Parts People Hold Meeting

New York, June 19—Special telegram—Creditors of the United States Motor Co., belonging to the Motor and Accessory Manufacturers, held a meeting today to discuss the situation of the concern. The bankers, under the leadership of Mr. Strong, had invited the accessory and parts men to co-operate in devising a plan to give the company a chance and the meeting resulted in the naming of a merchandise creditors' committee.

It is understood that the company has nearly $1,000,000 in cash in its treasury and that the claims may amount to about $2,500,000. Statements are being prepared but the work is so extensive that it is quite slow.

The fundamental reason for the difficulty the company finds itself in at present, according to representative men in the industry, lies in the fact that it extended its manufacturing operations materially without providing an emergency fund to tide over such a period as the unforeseen bad weather of last March.

COLT'S PLAN APPROVED

New York, June 17—Formally ratifying the plan to increase the capitalization of the United States Rubber Co. from $45,000,000 to $120,000,000 the shareholders held a special meeting Monday at New Brunswick, N. J., the corporate home of the company. The action was practically unanimous as far as the shares represented at the meeting were concerned, only 124 standing opposed to the plan suggested by President Samuel P. Colt.

The plan adopted calls for the issuance of $5,000,000 of common and the conversion of $10,000,000 second preferred into $7,500,000 of first preferred and an issue of $10,000,000 first preferred. The latter item is to supply working capital for the corporation. The stock issues will then be outstanding, $30,000,000 common and $57,000,000 preferred. Remaining in the treasury of the company will be $10,000,000 common and $22,500,000 preferred. The stock dividend involving $5,000,000 of common will be considered immediately.

GOODRICH OFFICIALS ANNOUNCED

Akron, O., June 18—The personnel of the new B. F. Goodrich Co., which recently took over the Diamond company, has been announced. B. G. Work will be president. He has been connected with the Goodrich company for 25 years and for the past 10 years has been the active head. A. H. Marks will be vice-president and general manager. He has been the active head of the Diamond company since its organization and the success of the company has been due to his great skill in handling and manipulating rubber. E. C. Shaw will be one of the second vice-presidents and the works manager. For a number of years he has held the position of manager of the works with the Goodrich company.

H. E. Raymond, sales manager, and W. B. Miller, who held the same position with the Diamond company, will divide honors in selling the products of the enlarged company. H. E. Raymond will have the title of second vice-president and sales manager and W. B. Miller will have the title of vice-president and assistant sales manager. C. B. Raymond will continue as secretary and W. A. Means as treasurer of the company.

This group of men, although old in the business, are young in years, none of them being over 45.

GOODYEAR INCREASING CAPACITY

Akron, O., June 18—C. W. Martin, Jr., sales manager of the motor truck tire department of the Goodyear Tire and Rubber Co., says that arrangements are being made for increased capacity to bring the output of the plant to 1,000 truck tires a day.

"Orders have already been placed," said Martin, "for additional equipment for the manufacture of all types of tires. The motor truck business is increasing wonderfully, and the tire output is an excellent barometer of the coming of the truck into commercial life and the passing of the horse."

Commenting on the output of the Goodyear Tire and Rubber Co., Mr. Martin says the week ending May 15 was a record one in the history of the company. For the 6 working days 146,114 pounds of solid tires were manufactured, 24,053 pneumatic casings and 28,980 inner tubes.

OLD JONZ PLANT SOLD

Louisville, Ky., June 17—The plant of the American Automobile Mfg. Co. at Vincennes and Locust street, New Albany, Ind., was sold at a receiver's sale yesterday afternoon. The property was bid in by the American Automobile Corporation, a new company formed chiefly by the stockholders of the old concern, at $17,500.

Gossip of the Motor Trade from Detroit

The purchasers, however, assume a mortgage against the plant amounting, together with the interest due, to $25,000, together with some taxes and small claims that bring the purchase price up to $45,000.

The purchase includes a fraction over 6 acres of ground at Vincennes and Locust streets, and half a dozen two-story and three-story brick buildings, formerly occupied by the old New Albany Woolen Mills Co., which was fitted and equipped by the American Automobile Mfg. Co., which started out to make Jonz motor cars.

Following the sale a meeting of the stockholders of the American Automobile Corporation was held, after which it was announced that the concern would operate the plant. The capacity of the plant is ten cars a day, it is said, but it was stated that the company would begin work at a rate of a machine a day, and would gradually increase the output until it reached the limit capacity of the plant. Before work is started at the plant, workmen must be assembled, material purchased and other supplies gotten together, which will require about 30 days.

MISHAWAKA KEEPS AMPLEX

South Bend, Ind., June 17—The Simplex Motor Car Co, Mishawaka, Ind., manufacturer of the Amplex cars, has just been incorporated in Delaware for $1,000,000 and certified in Indiana for $500,000 to permit the company to do business in this state. It has been assured that the concern will remain in Mishawaka and will begin the manufacture of motor cars on a large scale in 2 or 3 months, if not at an earlier date. The concern is now operating on a small scale. The incorporation follows the acquiring by H. N. Hovey and T. C. Starret, of Detroit, chief stockholders of the company, the stock held by thirty or more small stockholders.

TIRE COVER INJUNCTION GRANTED

Chicago, June 15—Judge C. C. Kohlsaat of the United States circuit court has rendered a decision in the case of the Vehicle Apron and Hood Co., of Columbus, O., vs. the American Tire and Rubber Co., of this city, enjoining the latter "from substituting or attempting to substitute other tire covers when Gordon tire covers are ordered." The Vehicle Apron and Hood Co. also has brought suit against the Fred Allen Auto Supply Co., of Chicago, and the National Auto Supply Co., of New York.

TO CONSIDER SHOW MATTERS

New York, June 17—Several matters of trade importance will come up for action at the summer meeting of the Motor and Accessory Manufacturers, whose directors assemble in New York June 28. The question of sanctions will be the chief item considered and the action will extend to the circuit dates presented by the National Association of Automobile Manufacturers.

Plans for the convention of pleasure-car sales managers are slowly forming along the lines followed by the truck branches of the industry. Chairman H. O. Smith of the committee which has this work in hand has announced no definite plan so far but the matter has been presented to the various companies for suggestions as to program and the grounds to be covered.

The summer meeting of the Automobile Board of Trade is scheduled for July 11 and it was the original intention of the committee to hold the convention of sales managers at about the same time.

GAS ENGINEERS MEET

Milwaukee, Wis., June 19—Several hundred gas engine builders, jobbers, agents and others interested in the production and selling of internal combustion motors of all kinds, are attending the semi-annual convention and annual exposition of the National Gas Engine Association in Milwaukee this week. Freight rates, insurance restrictions, oil inspection, industrial education and a score of other topics are being discussed.

At today's session A. E. Potter of New York delivered an address on "Some Lubrication Problems." "The Diesel Motor" was the subject of an illustrated discussion by A. O. Krieger of St. Louis. On Thursday H. E. Phillips of Dayton, O., will discuss "Something About Ignition," and L. W. Ellis of LaPorte, Ind., is slated for a talk of "The Tractor."

Friday will be devoted to advertising and publicity talks. E. R. Shaw, president of the American Trade Press Association will speak on "Publicity Through Trade Journals and What It Means to the Manufacturer." Charles H. Hall of Milwaukee is scheduled for a discussion on "Direct Advertising to the Dealer."

In the exhibits, which fill the arena of the Auditorium, are a number of motor cars manufactured by concerns which are essentially engine builders.

SULTAN LOSES DECISION

Richmond, Va., June 17—The jury in the suit of the Virginia Taxi Service Co against the Sultan Motor Car Co., returned a verdict for the plaintiff for $20,000 damages. Hearing of a motion to set the verdict aside was deferred until officials of the defendant company can be communicated with. The case had been in progress for 2 weeks when it was given into the jury's hands. The plaintiff concern asked for damages on the plea that the taxicabs purchased from the builders did not perform the services expected of them.

Reorganization of Metzger Company Completed and District Managers Chosen—Studebaker Corporation Running in Good Shape, Notwithstanding Resignations

DETROIT, Mich., June 17—Announced plans of the Everitt Motor Car Co., recently reorganized from the Metzger company, are causing great local interest. With the exception of the formal acquisition of Walter E. Flanders, the firm's organization is said to be now complete.

Sales Manager Paul Smith is modeling a system of direct distribution, the detailed management of which he has placed in the hands of men associated with him during his work at the Studebaker Corporation. The districts will be under Assistant Sales Manager Frank H. Smith and are as follows:

San Francisco district, T. J. Toner; Portland district, Charles E. Booth; New York district, C. F. Redden; Charlotte, N. C., district, A. Burwell, Jr.; Buffalo district, Frank M. Greene; Indianapolis district, Frank B. Willis; Louisville district, E. L. Jacoby; Des Moines district, C. F. Stewart; Kansas City district, C. E. Stebbins; Minneapolis district, C. R. Newby; Philadelphia district, E. G. Oliver. Charles F. Adams is now in charge of the Everitt manufacturing department.

Despite the considerable inroads made on its sales department by the withdrawal of the branch managers mentioned, there is no confusion apparent at the Studebaker Corporation plant, which is said to be enjoying the greatest sales month in its history. As a matter of fact, the Studebakers had prepared for the move weeks before it took place. Local gossip has it that Ernest R. Benson, the new Studebaker sales manager, has been virtually under contract since January, and knew in advance most of the men on whom he could rely. Within a week every Studebaker employe who left had been replaced with a man who had been given a special preparation for the work—many of them in the Studebaker service.

Rumors are rife that the Everitt company is soon to be merged with the Flanders Mfg. Co., in which both Flanders and the Studebakers are interested, though the former's friends hold a controlling interest. These are neither affirmed nor denied by E. LeRoy Pelletier, who is in charge of the Everitt press bureau.

A development of the week was the announcement of W. S. Pettit's appointment as advertising manager of the Studebaker motor car division. Mr. Pettit has been in charge of the details of Studebaker advertising for more than a year and of course is familiar with the work.

MOTOR AGE
Published Weekly by
THE CLASS JOURNAL COMPANY
910 South Michigan Avenue CHICAGO
NEW YORK OFFICE
239 West 39th Street
SUBSCRIPTION RATES
United States and Mexico $3.00 per Year
Other Countries including Canada $5.00
Entered as Second-Class Matter September 19, 1899, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879

Trend in Motor Lubrication

MORE and more are car manufacturers coming to realize the enormous influence that an adequate lubrication system has on the running and life of their motors. Heretofore many motor troubles that have been due to faulty lubrication have been laid to carburation and faulty cooling. It has been easy to adjust the carbureter, but quite another matter to enter into the inners of the lubrication system and see if it is functioning properly. About the only indications the driver gets of inadequate lubrication or over lubrication are the black smoke cloud when too much oil is being fed and the loss of power and heating when not enough oil is feeding. At other times the enormous carbon deposits on the insides of the combustion chambers and valves tell of too much oil, or using an oil not suited to the peculiar needs of the motor.

THE present trend towards improved lubrication started in Europe a few years ago, that is so far as popularizing modern methods of motor oiling. Long before that time not a few makers had reached the desired point of motor oiling, in fact, reached points of development which the big mass of makers is much behind today. But these few existed in a class by themselves, hosts of the others making little effort even to imitate them. But changes came: In some cities the police enforced stringent regulations on smoking exhaust, not a few arrests followed, cars were driven off the main thoroughfares for smoking. This brought the question home to the maker.

ONE of the most important lubrication trends today is that of pressure feed to the main engine bearings, by main bearings being meant the crankshaft bearings, the lower connecting rod bearings and the wrist pin bearings. The most modern oiling system forces oil direct from the oil pump to these bearings under pressures ranging from a few pounds to as high as 30 pounds. Generally the oil is fed direct to the crankshaft bearings, the throws of the shaft are drilled to feed the oil into the lower connecting rod bearing, and up the connecting rod leads an oil pipe up which the lubricant flows to the wrist pin bearings and thence out over the cylinder walls. This is a positive system, but in several cases it has been found necessary to regulate the oil flow with the throttle, giving more oil with more throttle opening and less when the throttle is closed.

THE avoidance of smoking on low speeds with the throttle nearly closed has been a problem with many makers. It is a difficult one to handle. The fundamental reason for smoking under such conditions is that the vacuum created in the combustion chamber above the piston is greater with a nearly closed throttle than with an open throttle. This increased vacuum tends to suck the oil up the cylinder walls past the piston rings. To avoid this several concerns are now leaving a wide groove around the piston midway of its length. In this groove is a series of holes leading to the inside of the piston, these holes permitting the air from the crankcase being sucked up by the vacuum rather than the oil film between the cylinder wall and the skirt of the piston. On this oil groove the upper edge is cut at right angles, whereas the lower edge is bevelled, the object being to pull the oil off the cylinder wall by the right-angled edge on the down stroke and not to carry it up the cylinder edge on the up stroke.

THE car maker has realized that it is easy to get too much oil and very difficult to get enough oil to his motor parts. With the splash system the great aim has been to have the lower end of the connecting rod splash the oil onto the cylinder walls and the lower part of the piston skirt. But with the non-splash oiling systems, baffle plates are usually placed under the open ends of the cylinders, these baffles entirely closing the open end of the cylinder except for the slot through which the connecting rod reciprocates. In this way the oil is kept away from the cylinder walls, the baffle even preventing the oil thrown off the lower connecting rod bearings from reaching the cylinder walls, so that practically all the lubricant that reaches the cylinder walls must reach them direct from the pump and by way of connecting rod and hollow wrist pin.

ONE of the major trends of next year in the oil system will be the inter-connection of the throttle with the oil supply. This was started abroad a few years ago when the tilting trough was adopted, the tilt of the trough being linked with the throttle. Each trough carries but a small supply of oil and instead of the big end of the connecting rod dipping into the trough, which would be impossible, a small scoop is used on the connecting rod end, this scoop picking up what is considered an adequate supply. This scheme is used on not a few American motors and more promise to make use of it. A criticism that has been mentioned in connection with it is that at certain motor speeds the scoop practically throws all of the oil out of the trough and so the motor is starved. There is not any reason why increasing the size of the trough would not obviate this trouble. The non-tilting trough is also used by many makers today, the reason of its introduction being that the oil is not churned up so much as in the ordinary splash system.

ONE remarkable feature in the form of an improvement on the lubricating systems today is the desire to deliver fresh oil to the cylinders and bearings parts when undergoing heavy service. There are several makers who have clung to the old form of mechanical oiler, in which fresh oil is delivered drop by drop to the motor parts, always a fresh supply being added and the old drained off, and it seems as if the makers who adopted the circulating oiling systems are considering the question. The necessity for such is undoubtedly owing to not changing the circulated oil frequently enough, and also to not having adequate straining facilities to remove all metal particles from the oil between successive circulations. Still another reason may be due to the fact that several engineers claim the oil is circulated too rapidly in some of the circulating systems, it not having enough opportunity to cool between successive circuits of the motor parts. In order to overcome this last difficulty some of the more enterprising makers are providing means for cooling the oil between circuits, one of these being an air insulation between the crankcase proper and that portion of the motor base forming the oil reservoir. Another scheme is to introduce some form of oil radiator, similar in operation to a water radiator, but of much smaller size.

Far West Pledged to Good Roads Cause

Meeting at Logan, Utah, Attended by More Than 500 Delegates

LOGAN, Utah, June 15—The Inter-Mountain Good Roads Association closed its third annual convention here last night and with its close witnessed the largest gathering and most enthusiastic meeting of good road builders ever held in the inter-mountain west. More than 500 delegates from six states, Utah, Idaho, Wyoming, Colorado, Montana and Nevada were present. The meeting was remarkable inasmuch as fully 90 per cent of the delegates came from the farming or country districts and not more than 10 per cent were owners of motor cars.

The reports showed miles and miles of improved highways completed since the meeting a year ago at Pocatello, Idaho. Reports from state and county officials in charge of road improvements showed that much work is now under headway and that combined attacks will be made on the state legislatures the coming winter for still more funds with which to prosecute further road building.

Many resolutions were passed. Chief among them were a memorial to congress asking for the construction of the Lincoln highway from Gettysburg to Washington, the immediate opening of Yellowstone park to motor cars, federal aid in the construction and maintenance of national highways, the adoption of the state highway commission plan in all states, and furnishing funds for delegates to attend the American road congress.

Boise, Idaho, secured the convention for next year. J. A. Hendrickson of Logan, Utah, was elected president and O. J. Stillwell of Oregon, secretary for the coming year.

TROUBLES OF THE A. C. A.

New York, June 19—Special telegram—Closely following upon the induction into office of the new régimé at the Automobile Club of America, orders were issued to call in all privilege cards. Following upon the heels of that order the management has practically closed down the club features of the organization. The restaurant, grill, reading rooms and other departments have been suspended. The club is operating the garage, laboratory and a few other features. Few actual resignations have been sent in since the revolution and rumors of another attempt to wrest the management from the Whitridge régimé are in active circulation.

BAY STATERS HAVE OUTING

Boston, Mass., June 17—The annual outing of the members of the Bay State A. A. of Boston started from here Saturday morning, the objective point being Lake Spofford, N. H. As Monday is a local holiday the motorists took advantage of the extra week end for the annual trip. There were nearly 250 in the party. The start was made from the Bay State headquarters on Boylston street and then out through over the historic route of Lexington and Concord to Fitchburg. From there the motorists headed north to Keene, N. H. A number of others joined the party at Fitchburg and Winchendon. On reaching the lake some amateur sports were indulged in during the afternoon, and in the evening there was dancing. Sunday was spent in boating and motoring. Monday there were all sorts of athletic games, including water sports for a series of prizes donated by the dealers. A number of the motorists remained over for a few days, the others going home today.

Coming Motor Events

*June 20—Algonquin hill-climb. Chicago Motor Club, Algonquin, Ill.
June 20—Monthly meeting of S. A. E., Indianapolis branch.
*June 20-22—Reliability run; Pine Tree Motor Contest Association, Portland, Me.
June—Hill climb; Maine Automobile Association, Portland, Me.
June 25-26—Grand prix road race; Dieppe, France.
June 27-28—Interclub match; Chicago Athletic Association and Chicago Automobile Club.
June—Track meet; Baltimore, Md.
June 27-29—Summer meeting Society of Automobile Engineers, Detroit, Mich.
June 27—Reliability run; Buda Pesth to Constantinople.
July 4-5—Track meet; Taylor Automobile Club, Taylor, Tex.
*July 4-6—Beach meet; Old Orchard Automobile Association, Old Orchard, Me.
July—Reliability run; Maine Auto Association.
July—Reliability run; Cleveland News.
July 4—Track meet; Petersburg, Ind.
July 5-6—Road race; Montamara Festo Auto Com.; Tacoma, Wash.
July 8-13—New York motor car carnival.
July 15-18—Cleveland News reliability run.
July 15-20—Reliability run; Wisconsin State Automobile Association, Milwaukee, Wis.
July 22-27—Cadillaqua celebration at Detroit, Mich.
*August 8-10—Galveston beach meet; Galveston, Tex.
*August 24—Road races; Chicago Motor Club, Elgin, Ill.
*September 2—Speedway meet, Indianapolis, Ind.
*September—Commercial vehicle run; Chicago Motor Club.
September 17—Vanderbilt and Pabst cup road races, Milwaukee, Wis.
September 21—Grand prix and Wisconsin Motor cup road races, Milwaukee, Wis.
September 17-20—Fire engineers' convention; International Association Fire Engineers, Denver, Colo.
September—Track meet; Universal Exposition Co., St. Louis, Mo.
*October 7-11—Chicago Motor Club reliability run, Chicago.
October 12—Track meet; Rockingham park, Salem, N. H.
November 6—Track meet; Shreveport Automobile Club, Shreveport, La.

SHOWS

July 10-20—Canadian Industrial Exhibit; A. C. Emmett, manager motor section; Winnipeg, Can.
September 23-Oct. 3—Rubber show, Grand Central palace, New York.
September 26-Oct. 6—Exposition agricultural motor cars, Bourges, France.
November 8-16—Olympic show; overflow November 22-30 Agricultural Hall.
December 7-22—Paris salon.
January 4-11, 1913—Cleveland show.
January 11-18—New York show.
January 20-25—Philadelphia show.
Jan. 27-Feb. 1—Detroit show.
February 1-8—Chicago show.
February 10-15—Minneapolis show.
February 17-22—Kansas City show.
Feb. 24-March 1—St. Louis show.
March 3-8—Pittsburgh show.
March 8-15—Boston show.
March 17-22—Buffalo show.
March 19-23—Boston truck show.
March 24-29—Indianapolis show.

*Sanctioned by A. A. A.

FOUR-STATE ENTRIES CLOSE

Indianapolis, Ind., June 18—Final arrangements for the second annual four-state tour of the Indiana Automobile Manufacturers' Association were made at a meeting of the organization held in the Claypool hotel in this city last night. The tour will start from this city at 6:30 a. m. July 9 and will continue 16 days through Indiana, Ohio, Kentucky and West Virginia. There will be a Premier ambulance, in charge of Dr. Lyons, of Peru. Entries have been closed and are as follows:

Nyberg Motor Car Co., Anderson, three cars and one truck; Henderson Motor Car Co., Indianapolis, one car; Maxwell-Briscoe Motor Co., Newcastle, three cars; American Motors Co., Indianapolis, three cars; Service Motor Car Co., Wabash, two cars; Great Western Automobile Co., Peru, two cars; Motor Car Mfg. Co., Indianapolis, two cars; Marion Motor Car Co., Indianapolis, two cars; Premier Motor Mfg. Co., two cars; Nordyke & Marmon Co., Indianapolis, two cars; McFarlan Motor Car Co., Connersville, two cars; Haynes Automobile Co., Kokomo, two cars; De Tamble Motors Co., Anderson, two cars; Cole Motor Car Co., Indianapolis, two cars; Double Febric Tire Co., one car.

ANOTHER HORN SUIT STARTED

Chicago, June 17—The Aermore Mfg. Co., of 1536 Michigan boulevard, Chicago, has filed a bill in the United States circuit court at Chicago against the New Era Mfg. Co., manufacturer of the Trinity Chimes exhaust horn. The bill charges the defendant concern with infringing the patent granted to the Aermore company January 23, 1912, for an improvement in exhaust horns and prays for an injunction to restrain the defendant from manufacturing or vending the Trinity Chimes horn and for an assessment of damages on account of such illegal manufacture and sale already made.

CONDITION OF RUBBER MARKET

New York, June 17—Crude rubber was steady and quiet in the markets of the world during the past week. The rubber auction at London this week will be a small affair on account of the labor troubles, the offerings amounting to only 200 tons. The Antwerp auction will be larger in volume as about 400 tons will go on the block. The prevailing level corresponds to the price of up-river fine at New York, which is $1.11½ a pound.

Graham Riebling Wins Studebaker Run

A CAR FULL OF INDIANS ON THE CANYON'S RIM

A. D. Aiken Placed Second and R. C. Baker Third in Long Reliability

PHOENIX, Ariz., June 13—Graham Riebling, of Prescott, won the Arizona Motor Co.'s sociability run for Studebaker cars, from Phoenix to the Grand canyon and return, A. D. Aiken was placed second and R. C. Baker third. Riebling used 29 gallons of gasoline, Aiken 40 and Baker 41.

The long run ended last evening. It was a tremendous success from start to finish, and gave the good roads movement in Arizona a tremendous impetus. Not one of the cars, excepting the two repair machines, had any serious trouble.

The Aiken and Riebling cars were the only ones that made every control within the specified time. John Northcutt, of Phoenix, made a splendid record until the canyon was reached. Tire trouble delayed him between the canyon and Flagstaff, and after that only Aiken and Riebling were in the competition for the prizes.

Mrs. Harry Kay, the only woman who drove in the tour, performed brilliantly. Not one of the men could beat her in handling a car in difficult places. Maurice O'Neill, of Phoenix, drove brilliantly till yesterday, when he crashed into a stump 100 miles north of Phoenix and damaged his steering gear.

Prizes for Winners

There are two prizes for the winners. The first is a magnificent silver loving cup donated by the Studebaker Corporation, and the second is a set of tires given by the Arizona Motor Co., which holds the state agency for the cars made by the Studebaker Corporation.

The route from Phoenix to the canyon and return is 609 miles long, but the cars took numerous side trips and traveled over 700 miles during the 9 days that they were absent from Phoenix. The side trips did not count in the competition for prizes.

Following is a complete list of the participating cars, their owners and drivers in the order of their departure:

Pacemaker, E-M-F, Arizona Motor Co., owner; L. J. Ollier, driver.
Press car, E-M-F, Arizona Motor Co., owner; Norman Wormsley, driver.
E-M-F, Eugene Brady O'Neill, owner; Maurice O'Neill, driver.
E-M-F, Harry Lockett, owner; Frank Lang, driver.
Flanders, M. P. White, owner and driver.
E-M-F, R. C. Baker, owner and driver.
E-M-F, A. J. Houston, owner and driver.
E-M-F, Graham Riebling, owner and driver.
E-M-F, James A. Johnson, owner and driver.
E-M-F, John Northcutt, owner and driver.
Flanders, R. Allyn Lewis, owner and driver.
Service car, E-M-F, Arizona Motor Co., owner; E. V. Brown, driver.
E-M-F, A. D. Aiken, owner and driver.
E-M-F, James Kennedy, owner and driver.
E-M-F, W. J. Lembke, owner and driver.
E-M-F, W. W. Henley, owner and driver.
Flanders, W. H. Banks, owner and driver.
Flanders, C. T. Lesueur, owner and driver.
E-M-F, Arizona Motor Co., owner; Wayland Wood, driver.
Service car, E-M-F, Arizona Motor Co., owner; W. M. Hemperly, driver.

Management of Tour

The run was held under the sociability rules of the American Automobile Association. George Purdy Bullard acted as referee; A. J. Moore, chief of the Phoenix police department, was timer, while Harry Welch and Don L. Peake were checkers. Wayland Wood, manager of the Arizona Motor Co., was manager of the tour. He was assisted by L. J. Ollier, coast Studebaker agent, who came from Los Angeles especially to participate in the run.

At 6:15 Tuesday morning, June 4, the pacemaking car left the Arizona Motor Co.'s Phoenix garage. The next car was checked out at 6:30 and the other machines left at 3-minute intervals thereafter.

First Day Hardest Run

The first day's run, from Phoenix to Prescott, was the hardest of all. That only three, excepting the pacemaker and the press car, finished within the specified time, is not surprising.

Leaving Phoenix the cars sped out Grand avenue through the broad alfalfa fields, sugar beet plantations and orange groves of the Salt river valley. After a run of about 15 miles they entered the desert, studded with giant sahuaros and golden bright with the blossoms of palo verde trees. They were ever climbing upward toward the blue mountains on the distant horizon. Curving stretches of desert road as smooth as an asphalt pavement were interspersed with narrow sections where the cars lurched and bounded like bucking bronchos. Late spring rains had washed gulleys across the road and there was deep sand in several wide arroyos.

At Hot Springs Junction the cars took water. From there to Wickenburg the road ran up and down over the foothills of the Bradshaw range. A stop of some 15 minutes was made in Wickenburg to take on oil, gasoline and water. The pacemaker was overtaken there by the press car and Riebling's machine.

For a few miles beyond Wickenburg it

STUDEBAKER TOURISTS BETWEEN ASH FORK AND THE CANYON

Motorists Travel 9 Days, Go 700 Miles

Many Adventures Recorded on Trip from Phoenix to Grand Canyon and Back

HALTING FOR LUNCH ON THE ROAD TO PRESCOTT

was heavy going in the sandy bottom of the Hassayampa, but soon the cars climbed out upon the level mesa once more. After another short halt for water at Congress Junction, the motorists wended their way over a hilly and otherwise unsatisfactory road to Stanton, and thence on up Yarnell hill, the hardest climb of the entire route with the possible exception of the Copper basin grade.

Beauties of the Trip

As the cars climbed higher into the mountains the prospect became more pleasant. Oak brush replaced the thorny shrubs of the desert and occasional farms were spied in the broad, grassy valley through which the road winds after topping Yarnell hill.

The cars crossed a clear, cool stream with clustered cottonwoods and took water at Kirkland. There were several miles more of deep sand in Kirkland wash, then a bad hill and—Copper basin.

Running for a short distance in the depths of the basin, the road begins the longest climb on the route of the tour. The road up Copper basin hill is fairly smooth, but its tilt is phenomenal and admits of fast going only in one direction. But when the tourists finally did achieve the climb to the divide, the highest elevation reached between Phoenix and the canyon, it was no mean reward that awaited them. The pine-clad slopes of the mountain slipped away a thousand feet to the rolling hills of the green valley below. Eight or 10 miles away rose the mountains of the valley's opposite wall; behind them was another range, and then another.

From the divide the cars coasted the entire 18 miles into Prescott. Some of them did not do their coasting, however, till the next morning. They began to pass each other and lose their starting positions as soon as they struck the desert. Some ran out of gasoline. One of the repair cars gave up its lights to another machine and in the darkness the driver succeeded in guiding it into a gulley, breaking some springs.

Some Run Out of Gasoline

At 1 o'clock Wednesday morning a rescue car was sent out from Prescott. The cars stalled on Copper basin hill were supplied with gasoline and all made the run into Prescott on their own power.

The eleven cars that were entered in the run under the sociability rules of the A. A. A. were given 13 hours to make the 130-mile trip to Prescott. The press car, pacemaker and three of the eleven competitors finished within that time. Riebling, in his E-M-F, made the best record, covering the distance in 10 hours 47 minutes, while A. D. Aiken, of Wickenburg, made a record of 12 hours 10 minutes. John Northcutt, of Phoenix, negotiated the distance in 12 hours 50 minutes.

Expecting that all the cars would arrive early in the evening, the people of Prescott had arranged a smoker and spread at the Yavapai Club. Though the number of tourists who arrived in time was very small, the entertainment proceeded the same as though everybody was there. A number of prominent citizens of Phoenix and Prescott made addresses on motoring earth's greatest chasm was reached by the tourists.

Ash Fork to the Canyon

During the next forenoon the Studebaker cars, escorted by Prescott motorists, made short trips to points of interest in the vicinity of that city. In the afternoon the short run to Ash Fork was made over roads which the people of Prescott had repaired especially for the Grand canyon run. A night was spent at the Escalante hotel, Ash Fork, and the next day the earth's greatest chasm was reached.

From Ash Fork to the canyon the road was very pleasant indeed. The cars traveled northward through grassy valleys and over low hills dotted with cedars and pinons. After an hour among the cedars the machines left the hills and rolled easily for about 12 miles over a level, grassy plain. Then the road turned toward the hills again and after a few minutes of easy climbing the divide was reached. Fifty miles to the north rose the sheer cliff of the canyon's farthest wall, which seemed to rise directly out of the hills with no hint of the titanic chasm wherein whole ranges of gigantic mountains are hidden from view.

After passing the divide the road kept to the hills for a time and then led down into a broad valley. A number of range horses that had never seen motor cars be-

A. D. AIKEN'S CAR, SECOND IN THE CONTEST

fore approached close to the gasoline bronchos and inspected them with equine curiosity.

The last 15 miles of the road to the canyon led through precipitous hills, heavily timbered with pinon, cedar and pine. When the canyon was reached the Reibling, Aiken and Northcutt machines had perfect scores. R. C. Baker was only 5 minutes overtime in reaching El Tovar hotel, on the rim of the canyon, while Maurice O'Neill had a perfect score except for 47 minutes lost between Phoenix and Prescott. Eleven other cars had perfect time scores for every day but the first. While the tour was not in any way a speed contest, a stiff pace was set. Riebling's time between controls for the 270-mile trip to the canyon was 20 hours 32 minutes. No allowance was made for numerous stops for water and the taking of pictures.

Entertained at El Tovar

At El Tovar hotel the tourists were royally received. All arrived long before night, with the exception of the second repair car, which stripped its gears and did not succeed in finishing the run till the next day.

Friday, June 7, was a day of delight unalloyed except for a heavy rainstorm in the late afternoon. Every car, excepting the one repair machine, had arrived in excellent condition. Many excursions were made to Sunset Point and other places of interest along the canyon's rim. Some of the motorists went down Bright Angel train to the bottom of the chasm.

An informal reception for the travelers was held in the El Tovar music room Friday evening, and the Pioneer Studebaker Sociability Touring Club of Arizona was organized. Only the persons who took part in the run are eligible to membership, and all joined. Eugene Brady O'Neill was made president and Miss Jessie Blake secretary.

At 7 o'clock Saturday morning the Studebakers left the El Tovar. The cars followed a winding road through the pines for about 14 miles to the Grand View hotel, where they stopped for gasoline. A short trip was made to Grand View point for a last glimpse of the canyon. Raymond Babbitt and several other Flagstaff motorists joined the party at the Grand View and piloted them to the Skylight City.

Climb Pine-Clad Hills

The road through the pine-clad hills between the canyon and Flagstaff was one of the best on the trip

All afternoon the cars jammed their noses into a stiff breeze. There were very few punctures or blowouts and almost no engine troubles on the road to Flagstaff. The town was reached late in the afternoon. Riebling and Aiken still had perfect scores, but Northcutt had some minor troubles that delayed him beyond the allotted time.

The people of Flagstaff certainly made a fuss over the tourists. The entire population of the town turned out to welcome them and each member of the party was given a handsomely illustrated program of the joys to be provided during the stop there. As the hotel accommodations of the place are limited, the dormitories of the Northern Arizona normal school were thrown open for the accommodation of the visitors. In the evening a reception and entertainment was given in their honor at the theater.

Flagstaff's Scenic Marvels

Flagstaff boasts of more scenic marvels than any other town in Arizona. At 10 o'clock Sunday morning the Studebaker tourists started out for a day of sightseeing, accompanied by a large escort of local cars. Progressing steadily southward, they passed the bottomless pit, a hole into which the River de Flag plunges, never to be seen again. A stop was made at the forest ranger's headquarters on the rim of Walnut canyon. Most of the motorists tramped down the trail into the canyon to see the prehistoris cliff dwellings. About half way up the mountain side a sandstone wall projects from the precipitous slope and beneath this natural roof a prehistoric race erected some 800 dwellings, wherein at least 2,000 people made their homes.

After visiting the cliff dwellings the travelers partook of a luncheon provided by the Flagstaff members of the Good Roads Associations of Arizona. After lunch an 18-mile run to the famous lava beds was made. For the last 5 miles the road led over hills of bleak volcanic ash dotted with occasional pines. The spinning rear wheels of the machines threw showers of cinders as they forged up the hills.

Of wonders there was no end. On the way back to Flagstaff the tourists visited the dwellings of the cave men—huge bubbles in the lava on a mountain top where the most primitive of peoples once made their homes. Sunday evening the travelers visited the Lowell observatory, just outside of Flagstaff, where they gazed through the great lens upon the marvels of other worlds.

Another 7 o'clock start was made Monday morning and a quick run was made to Williams, west of Flagstaff on the main line of the Santa Fe. A stop of an hour was made at the Arizona Lumber and Timber Co.'s mill and another stop was made at a little lake near Williams, where the cars were lined up for the thousandth time and photographed. The road from Flagstaff to Williams is delightful. It leads through pine lands, from which most of the timber has been cut, and across broad, grassy swales and meadows, dotted with tiny lakes on which were thousands of ducks and geese.

Tourists Well Entertained

A reception committee met the tourists at Williams and escorted them to the Fray Marcos hotel, where lunch was served. During the afternoon another lumber mill was explored. In the evening the motorists were the guests of the people of Williams, at a banquet in the Fray Marcos dining room. President O'Neill of the Studebaker Touring Association called a meeting of that organization and votes of thanks were tendered the citizens of Williams and Mr. Wood. After the banquet a dance was held in the town opera house.

The next day every car made the run from Williams to Prescott within 9 hours, the official limit. Before the start the cars were lined up and three cheers were given for the people of Williams.

Interest in the outcome of the run was at a high pitch when Prescott was reached. Everything depended upon the last day's drive. Riebling and Aiken had made every control on time, while O'Neill and Northcutt had made excellent records.

Eighteen cars, with eighty passengers, left Prescott for Phoenix. Several machines that belonged in the northern part of the state did not return to Phoenix.

Grand Canyon Conquered

B. L. Graves and Chester Lawrence Drive a Ford to Very Edge of Colorado River in Bottom of the Earth's Deepest Wrinkle—Horses Haul Car Back to Civilization

PHOENIX, Ariz., June 12—The Grand canyon of Arizona has been conquered by the motor car. B. L. Graves, manager of the California branch of the Ford Motor Car Co., last week drove a Ford stock car to the very edge of the Colorado river, in the bottom of the earth's deepest wrinkle. He was accompanied on the perilous journey by Chester Lawrence, a newspaper man.

No one ever before attempted to drive a motor car into the canyon. Only two horse-drawn vehicles ever have been taken down the trail followed by Graves and Lawrence. The first buggy was driven into the canyon 24 years ago by John Nelson, Sr., and John Nelson, Jr., followed the Ford on horseback, with a supply of food, the day after it started. Had it not been for Nelson's thoughtful act the daring motorists might have perished in the depths of the great chasm.

The start was made from Peach Springs in the early morning. At Kingman Graves had secured a supply of dynamite and several times it was necessary to blast a path for the Ford. Seven miles of the trail were literally buried under great

Badgers Map Out Route

Annual Wisconsin Reliability, Set for July 15-19, Will Follow Trail Approximately 650 Miles in Length—Contest Differs from Previous Years and Has Many Unique Features

bowlders, many of which Lawrence and Graves rolled aside by main strength. They bumped the Ford over others that resisted their combined efforts. Once the car tipped over and only the fact that it rested on a big rock enabled them to right it. Intense heat in the depths of the canyon caused the gasoline to boil. They used their precious water to wet bags to place over the tank to keep cool the fuel contained therein.

It took 7 hours to traverse the 22 miles through Diamond canyon and along Diamond creek to the Colorado. When they reached the river Graves and Lawrence were well nigh exhausted. They had no water, food or gasoline. The water in the Colorado was warm and thick with mud.

For 12 hours they remained by the side of the Colorado. They were about to set out on foot for Peach Springs when Nelson reached them with food and water. After eating and drinking they climbed back up the trail to the rim. The grades were far too steep for the motor car and it was hauled out later by horses. The trip has occasioned all sorts of excitement in this section and it is regarded as a most wonderful performance.

PORTLAND PARADE AWARDS

Portland, Ore., June 15—Three of the highest prizes in the annual rose carnival motor parade on Wednesday were awarded to neighboring Pacific coast cities, Pasadena, Cal., taking the highest honors. The Seattle AD Club's entry took first prize for the best decorated car with artificial flowers, and the Lyle, Wash., Commercial Club won first honors in the class for clubs and societies. The parade was by far the largest ever held in connection with the rose festival, 500 cars participating, and the standard of decorations excelled that of previous years.

The entry from Pasadena was hidden under a square mass of green locust leaves and ferns that almost swept the pavement. At the front of the machine was a crown built of pink Caroline Testout roses and over the tonneau was a crown of the same shape and of the same flowers, but built on a larger scale. Into the background of ferns were woven pink roses, carnations and Canterbury bells, and from each side of the car depended beautiful imitations of oriental lanterns fashioned from blossoms of pink carnations. Richard Quincy, the driver, wore a white duck suit and behind him were five pretty young women, all wearing white.

MILWAUKEE, Wis., June 18—A route of approximately 650 miles has been selected by the executive committee of the Wisconsin State Automobile Association for the running of the third annual Wisconsin reliability tour for the Sentinel cup, a sweepstakes, and the Emil Schandein trophy, for private owners, on July 15, 16, 17, 18 and 19, 1912. The run will start and finish at Milwaukee. Grade 3 rules of the A. A. A. will govern the 1912 tour, instead of grade 1. The change in grade classification is made for several reasons, one being that reliability tours of national and state importance have been graded more leniently, like the Glidden or national tour, and another being that, to make a run of this kind more valuable to contestants, it is necessary to govern with the grade 3 rules rather than the restrictive grade 1, which do not permit of realizing the fullest possibilities of publicity and advertising.

To promote interest in motoring, particularly the sale of cars; to stimulate interest and compel effort in the improvement of highways, and to extend the activities of the Wisconsin State Automobile Association, affiliated with the A. A. A., will be the three principal objects of the 1912 Wisconsin reliability.

The richest sections of Wisconsin will be traversed by this year's tour. The territory included in the route lies in southern and eastern Wisconsin, and for the first time the tour will not touch the great northwestern part of the state. However, the territory selected will be especially interesting to Milwaukee entrants, as this section comprises the sales territory of a majority of dealers, who will thus be able to get directly in touch with their sub-agents and likewise their buyers. Milwaukee dealers who have the entire state territory will profit in equal proportion, as the section is a most fertile field for the sale of cars, being the most thickly populated of any part of Wisconsin.

Under grade 3 rules the contesting cars will be permitted to demonstrate as much as desired in towns and cities along the route, so long as they complete a day's run on the schedule time. Cars will be checked out automatically in the morning. At night controls evenings may be spent in demonstrating, so long as the observer is present. The running time probably will be not more than an average of 10 miles per hour, making it possible for entrants to make lengthy stops en route to talk business with agents or buyers. The average day's run is only 130 miles.

The first day's run, July 15, will be from Milwaukee to Beloit, passing through Racine and Kenosha, well known motor industrial centers; Burlington, Lyons, Lake Geneva, the noon control; Elkhorn, Delavan, Clinton and South Beloit.

The second day's run, July 16, will be particularly profitable to sellers of cars. From Beloit the route is to Janesville, Milton, Whitewater, Fort Atkinson, Jefferson, Lake Mills, Waterloo, Marshall, Sun Prairie to Madison, noon control, the state capital; thence to Middleton, Sauk City, Prairie du Sac and Baraboo, night control.

On the third day, July 17, the tour will pass through the vast water power interests along the Wisconsin river, from Baraboo to Delton, Kilbourn City, Cheney, Lewiston, Portage, Wyocena, Rio, Doylestown, to Columbus, noon control; thence to Beaver Dam, Horicon, Mayville, Theresa, Lomira, noted agricultural communities; to Byron, Fond du Lac, Van Dyne and Black Wolf to Oshkosh, night control.

A country that already has been touched by previous tours will be traversed on July 18, the fourth day, from Oshkosh to Neenah-Menasha and Appleton, the paper mill centers of the west; Hortonville, New London, Bear Creek, Clintonville, noon control; thence to Embarass, Shawano, Bonduel, Finnegans and Green Bay, night control.

The home run on the fifth day, July 19, is from Green Bay to Two Rivers and then down the west shore of Lake Michigan, which comprised the first day's trip last year. The tourists will pass through Manitowoc, Cleveland, Sheboygan, Sheboygan Falls, Cedar Grove, Port Washington, Grafton, Cedarburg, Thiensville, Brown Deer and finish at Milwaukee.

The tour passes through twenty-five counties and touches 125 towns and cities. It is conservatively estimated that 300,000 people will be directly interested in the tour and see the cars go by. This is probably more than reached by the first two tours, although these covered more counties and communities and were from 200 to 300 miles longer.

M. C. Moore, state organizer of the W. S. A. A., and pathfinder and pilot for the first two tours, has just completed the pathfinding work for the third run in a Case 40 touring car and reports greater interest in the coming run than before.

QUAKERS ENTERTAIN ORPHANS

Philadelphia, Pa., June 13—Through the courtesy of nearly a hundred private owners and agents who loaned cars for the occasion, the fifth annual orphans' day outing of the Quaker City Motor Club yesterday furnished a delightful day's entertainment to a larger number of unfortunates than ever before. All told, 1,265 children gathered from sixteen institutions scattered throughout the city were transported to Willow Grove park, where each was provided with a box of candy and allowed free rein to work off surplus energy.

Fifty-Three Left in French Grand Prix

Darracq Decides to Scratch Its Team of Four Cars, While the Sigma Knight Also Is Withdrawn—Some of the Mechanical Details of Candidates for International Road Racing Honors Over Dieppe Course on June 25 and 26

PARIS, June 8—Out of the fifty-eight cars entered for the French grand prix race, to be run at Dieppe on June 25 and 26, there will doubtless be fifty-three starters, the absentees being a full team of four Darracqs and the Sigma car with Knight motor. Soon after entering, the Darracq directors decided not to take part, and the Sigma company, after announcing that it would run with a stock car having a Knight sleeve-valve motor came to the conclusion that it was not worth while.

The fifty-three comprise fourteen cars built under the no-limitation rule, and thirty-nine complying with the 3-liter or 183 cubic inches cylinder area, with a minimum weight of 1,763 pounds empty. The two race together, the French club making no distinction of classes in the awarding of its $4,000 prize, but only those cars having a cylinder area of not more than 3 liters can compete for L'Auto cup.

The entrants in the big class are Dietrich with a full team of four, Fiat with three cars, two of which have American drivers; Peugeot and Rolland-Pilain with two each, and Excelsior, Mathis and Ford with one each. Full liberty has not tended towards originality in design, and although the lessons of the race have yet to be learned, it is already agreed that little progress can be made in motor car construction on the no-restriction basis. If the races are continued next year—and there appears to be no reason why they should not be—it is probable that the 3-liter class only will be retained.

Fiat Using Savannah Cars

Fiat, after considering the construction of a special set of racers of 5.5 by 8.6 inches bore and stroke, decided to make use of the same type of cars as used in the grand prix race at Savannah last fall. These are four-cylinder models of 5.9 by 7.8 inches bore and stroke, the motors having four valves per cylinder in the head operated by an overhead camshaft within an aluminum housing. Although a very fine mechanical construction, there really is nothing particularly original in the design, this type of motor having been used by Fiat for some of its largest touring cars and for racing boats. The carbureter jet is within the cylinder casting, only the float chamber being external; thus the mixture passes through a waterjacketed chamber before reaching the intake manifold proper. A double Bosch magneto is employed and is set across the front of the motor, the transverse shaft driving the water pump at one end and the magneto at the other. For the size of the motor the bonnet is remarkably short, there being practically no waste space between the honeycomb radiator and the first cylinder, and the fourth cylinder coming close to the dash. The cars have disk clutch, four-speed gearset and chain drive. They will be fitted with detachable wire wheels of 875 by 105 and 895 by 135 sizes; in full running order the cars will doubtless weigh 2,800 pounds.

Dietrich and Fiat Fastest

Lorraine-Dietrich has a slightly larger cylinder area than Fiat, the dimensions being 6.1 by 7.8 inches bore and stroke. Pair casting is adopted with valves mounted vertically in the head and operated from a single camshaft, the position of the valves calling for one long and one short rocker arm. Except in details, there is nothing to distinguish these cars from those run by the firm 4 years ago, and in external appearance they are identical with the racers of 1908. They are faster than anything yet built, but they do not embody any real mechanical progress.

Over a short distance Fiat and Dietrich probably will be the fastest on the field, and being so closely matched and having the best driving talent available, these two alone should provide a fine struggle. Peugeot and Rolland-Pilain each has sought to get away from the heavy, powerful racing monster and have built cars of a comparatively light type, believing that with these they can hold out longer in a race of almost 1,000 miles than with the more classical type. Logically, there should be fewer stops for gasoline and tires, and in a race of this length the matter is of considerable importance. Peugeot has a four-cylinder monobloc of 4.3 by 7.8 inches bore and stroke with the crankshaft carried on three ball bearings, two valves per cylinder inclined in the head and worked direct off an overhead camshaft without the use of rockers, an exceptionally high oil pressure to every part of the motor, a pump water circulation and Bosch magneto. The motor develops 150 horsepower and as the complete car, which is shaft-driven through a four-speed gearbox, will not weigh more than 2,000 pounds all complete, it should be possible to run the entire distance with a stop at the end of the first day only for filling up. These two cars are an embodiment of the experience gained in 5 or 6 years' racing with limited bore motors and light cars, for with all restrictions removed Peugeot has preferred a light car with a small bore, long-stroke motor to the heavy car with big, square motor current last time an official race was run in France.

Rolland-Pilain has worked on similar lines, the motor being 4.3 by 6.4 inches bore and stroke, cylinders in pairs, four valves per cylinder inclined in the head, with operation from an overhead camshaft and rockers, the camshaft being driven from a vertical spindle at the front and bevel gearing. Chain-drive has been preferred, but with this exception there is much that is common between the Rolland-Pilians and the Peugeots. Weight is about the same—practically 2,000 pounds—fuel consumption being 16 miles to the gallon, and speed about 96 miles an hour on the level. Guyot, who is driving one of the cars, is an experienced and well-known race driver; Fauguet is an amateur who has not before appeared in a big event.

Excelsior has put in a six-cylinder model of 4.3 by 6.2 inches bore and stroke. This is the only six-cylinder car in the race, but as it is more of a modified touring model than a special racer, it probably will not be one of the fastest. Ford and Mathis have both put in modified stock cars of exceptionally low weight. The Ford is the stock model with chassis stripped for racing and lighter reciprocating parts. The Mathis has a motor of only 2.7 by 4.7 bore and stroke, this being the smallest in the race, and fully equipped weighs only 800 pounds.

Competition is keenest and the most original work has been accomplished in the class of cars having their cylinder area limited to 183 cubic inches. The desire of every maker in this class is to beat the big cars, and although it would appear to be theoretically impossible, so much may happen in a 2-day race of almost 1,000 miles, and so much original work has been done on these cars that the victory of one of them need not necessarily be looked upon as utopian. To get a 3-liter cylinder area with a stroke which will not be more than twice nor less than the bore, the cylinder diameter must necessarily vary between 3 and 3½ inches.

Some of the Smaller Cars

Sizaire-Naudin, Lion-Peugeot and Calthorpe have adopted the smallest bore and the longest stroke; the majority have preferred 3.1 or 3.3 inches, while Vauxhall is the only one to run up to the big bore of 3.5, with the comparatively short stroke of 4.6 inches. Out of many of these small motors it has been possible to get as high as 102 horsepower; but pushed to such limits there is very little margin of safety, and it is practically certain that none of the small motors could stand this strain for any length of time. The manufacturers with the most extreme type of motors hope to be able to maintain 75 horsepower,

which it must be admitted is a wonderful result with a motor of 3 to 3½ inches bore.

As a motor of this size is produced by practically every firm in Europe, the smaller number of the competitors have preferred to take their stock chassis, or as much of it as possible, and transform it into a racer. Obviously, however, there is not a single car in the race which can claim to be absolutely stock. The others have built special racing motors, and although they differ widely in design they they are common by reason of big valve areas, light reciprocating parts and high speeds.

Hispano-Suiza Features

One of the most interesting innovations is that of Hispano-Suiza. Here, in addition to the four working cylinders, having valves on opposite sides, there are two additional and smaller cylinders acting as pumps. These two are connected up to the crankshaft, thus producing a six-cylinder motor with four big and two small cylinders. The pumps aspire gas from the carbureter and at the close of the intake stroke and towards the end of the exhaust stroke send it under pressure into the respective cylinders. The charge is thus packed into the cylinder under compression before compression begins and the exhaust is swept out by a fresh charge under pressure. The result is obtained by fitting an additional valve over the intake valve and making use of a rotary distributer, as indicated in the drawings. Consumption is high, but this is not a matter of any importance, and as the motor develops 96 horsepower on the bench the makers claim to be satisfied with their innovation.

Sizaire-Naudin, another firm looked upon as likely to be among the winners, has made use of a four-cylinder motor with separately-cast cylinders bolted together to provide a common waterjacket, through which the flow is by thermo-syphon. There are four valves per cylinder on opposite sides, the valves being of very large diameter and placed horizontally near the head, the operation being by means of a pushrod and forked rocker arm, there being but one rod, and one rocker with two branches, for each pair of valves.

Design of Delage Cars

The general design is similar to that of the Delage cars which won first and third places in the Boulogne 3-liter race last year. There are three plugs per cylinder, two of them being fired simultaneously from a Bosch magneto and the third being supplied from a storage battery. Lubrication is by a high pressure of oil to every part of the motor, with a large quantity of oil in the base chamber of the motor and some arrangement for cooling it. This will either take the form of a special radiator across the front of the chassis or a special system of ribbing the base of the crankchamber. The former already has been tested out, but it is believed that equally good results can be obtained with less complication. Although thermo-syphon cooling is employed, with the water circulating through a plain tube radiator in the form of a W with its head towards the front, it is probable that there will be a separate fan for each cylinder.

Alcyon has a very special motor with separate cylinders carrying four valves each, these being inclined at 45 degrees and occupying practically the whole of the head. They have been designed to give exceptionally quick closing, this being obtained by means of an unusual method of pushrods with powerful coil springs, the valves being opened on the downward pull of the rods, against the compression of the springs, and not on their upward push. Gregoire has produced four motors similar in design to their standard product and a fifth one, which will probably be substituted for one of the others at the last moment, of very special construction. This latter has separate cylinders with hemispherical combustion chambers, the four valves in each being operated by rocker arms. The entire motor—cylinders and crankchamber—is waterjacketed, the crankshaft is carried on ball bearings and each cylinder has its own carbureter. The chassis has four speeds, three of them giving direct drive.

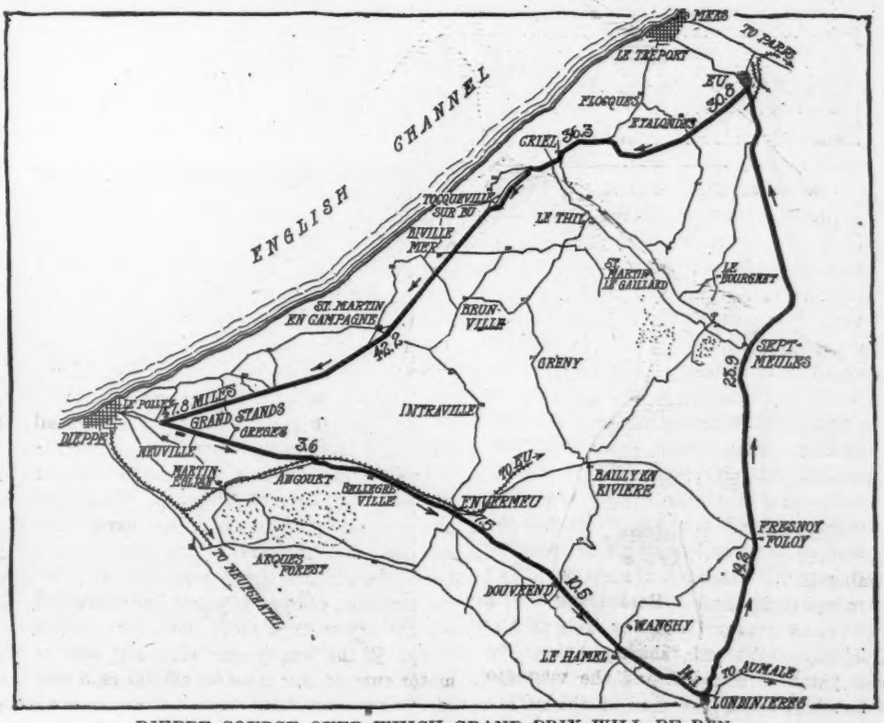
Something About Singers

Singer had adopted the L type of motor, but has modified it by using both valves for the exhaust and carrying a large intake above them. Thus the exhausts are operated from below and the intake from overhead by rocker, with the use of a single camshaft. The diameter of the intakes is 2⅛ inches for a cylinder bore of 3 1/10 inches. Sunbeam makes use of the usual L type of head with the valve stems inclined outwards in order to improve the form of the combustion chamber. Schneider is running with a couple of sleeve-valve motors of a type not yet shown to the public. Cote and Koecklin use two-cycle motors, the former being normal in its design and the latter comprising a sleeve valve combined with the piston. Several of the continental motors have ball-bearing crankshafts.

Shaft-Drive Popular

Without exception the firms in the 3-liter section have preferred shaft-drive to side chains. This is a matter of convenience, for although the motors may be special constructions, as much as possible of the chassis is standard and the makers all produce shaft-driven cars. The majority consider that a four-speed gearbox will give the best results, and as the course is not really hilly, it is difficult to see what advantage is obtained with a greater number. Gregoire makes use of six speeds, the fifth and sixth giving direct drive. Sizaire-Naudin have direct drive on all four speeds, on their standard cars, and have abolished the differential. In this way they reduce weight a little, lessen complication, and, it is claimed, diminish tire wear, for when a wheel leaves the road it cannot gain momentum and thus have its tire rasped when coming in contact again. Detachable wheels, as distinct from detachable rims and quick change devices, are employed on all the cars, the Rudge-Whitworth type being in the majority.

Among the fifteen British entrants very close attention has been paid towards the reduction of head resistance. Valuable experience has been gained in this direction on Brooklands track, and English manufacturers are convinced that a considerable increase in speed can be obtained by the adoption of stream-line bodies on the racing cars.



DIEPPE COURSE OVER WHICH GRAND PRIX WILL BE RUN

Cinos Shine in Cincinnati Hill-Climb

Three Firsts and One Second Captured by Fritsch and Radina in Dash Up Stanley Avenue Grade—Free-for-all Taken by Buick—More Than 5000 Spectators

CINCINNATI, O., June 17—The Stanley hill-climb took place last Saturday and was witnessed by more than 5,000 people. Out of thirty-three entries twenty-four starters came to the tape. There were nine events, among which there were two motor cycle trials. The honors of the day went to the Cino car, which secured three firsts and one second. A Cino carried four passengers up the 11 per cent grade faster than most of the cars negotiated the incline in stripped form. The distance of the climb was 273 feet short of ½ mile. Summaries:

160 AND UNDER, CLASS C

Car	Driver	Time
Flanders	Sackett	:37
Herreshoff	Palm	:40⅗

161-230, CLASS C

Buick	Hisey	:34⅘
Metz	Shane	:38
Elmore	Maiden	:41⅕
R. C. H.	Knott	:41⅘
Paige-D	Stacey	:60

231-300, CLASS C

Cino	Fritsch	:31⅕
Ohio	Raimey	:31⅘
Elmore	Hambly	:41
Cole	Jenkins	:42
Maxwell	Stone	:42⅕
Ohio 99	Mathews	:45

301-450, CLASS C

Buick	Hisey	:29⅘
Stutz	Dixon	:37⅘
Cole	Jenkins	:42⅕

FREE-FOR-ALL, CLUB MEMBERS, FULLY EQUIPPED, CARRYING FOUR PASSENGERS

Cino	Radina	:34⅘
Chadwick six	Shane	:42

FREE-FOR-ALL, CARRYING EQUIPMENT AND FOUR PASSENGERS

Cino	Radina	:34⅘
Chadwick six	Shane	:43⅕

FREE-FOR-ALL, CLASS D, STRIPPED

Buick	Hisey	:29⅘
Cino	Fritsch	:31⅕
Ohio	Raimey	:31⅘
White six	Jenkins	:33⅕
Ohio 99	Mathews	:34⅘
Flanders		:37
Elmore	Maiden	:40⅘
Elmore	Hambly	:41⅘

WOLVERINES' BUILDING PLANS

Detroit, Mich., June 17—The downtown club house, desirability of which has formed so fertile a topic for local discussion, is at last nearly assured. The Wolverine Automobile Club is now prosecuting a membership campaign which seems destined to succeed, and the promoters of the project have gone so far as to secure a conveniently located site on Madison avenue. Plans have been drawn up for a handsome club house.

The membership campaign has been started inside the ranks of the present club, which has headquarters in the Hotel Griswold. The dues of the club have been raised to $40 and initiation placed at $100, this for present and new members alike. The present membership is about 1,200. It is planned to increase this by 300 resident members and as many non-residents as care to join. It is believed that the large number of outsiders who have business connected with Detroit's motor industry, will be glad to avail themselves of the privilege.

Several local manufacturers have promised to reserve blocks of rooms for their dealers, some of whom always are in the city. Sleeping accommodations for 800 will be a feature of the club.

Though the charter of the club does not permit it to add a garage to its equipment, capital has been interested in the building of such an institution on a vacant lot next door.

BALTIMORE RESULTS UNKNOWN

Baltimore, Md., June 16—Just 202 motor cars started in the sociability run of the Baltimore News from Baltimore to Annapolis yesterday, and included in the starters were many women. The run was under the auspices of the Automobile Club of Maryland and the Baltimore Dealers' Association and governed by the rules and regulations of the American Automobile Association. Owing to some unlooked for difficulties the names of the winners will not be known for several days. The run was open to all kinds of pleasure cars and the average time to be made was well within the speed limit of the state and, consequently, the route traversed was well patrolled to prevent any speed violations.

NATIONAL QUITS COMPETITION

Indianapolis, Ind., June 17—A formal announcement is made today by the National Motor Vehicle Co. that it has been decided to withdraw from competition so far as the factory is concerned. The reason given for the retirement is rush of business and the victories gained by the National within the last year, including the 500-mile race.

The National company also points out that under the A. A. A. rules de Palma is not entitled to the intermediate records in the 500-mile race, the racing regulations making it compulsory for a car to finish in order to be credited with records broken. Therefore, George Dickson says, the intermediate marks belong to Dawson of the National and Tetzlaff of the Fiat.

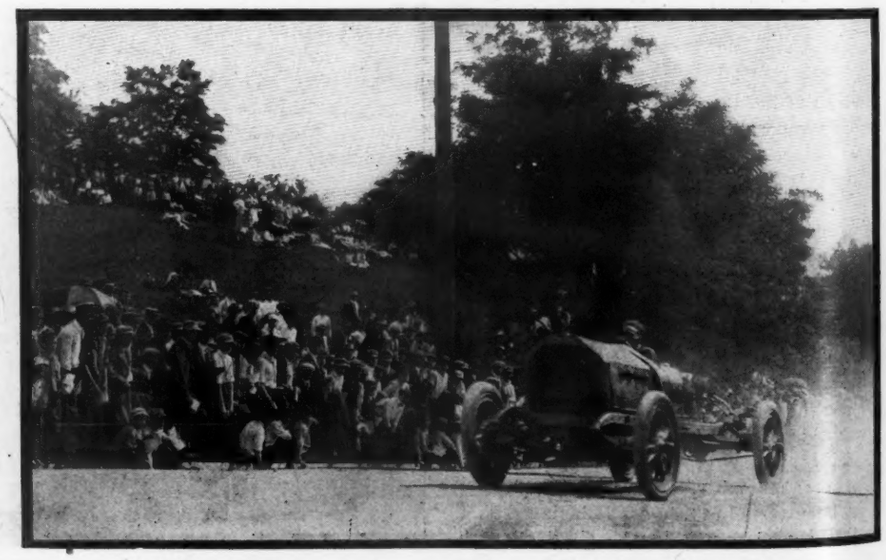
WASHINGTON RUN POSTPONED

Washington, D. C., June 15—For the second time the endurance run of the Automobile Club of Washington, scheduled for June 18-20, has been postponed, this time until September. The exact date will be determined later. The postponement was made because of a lack of entries. It is believed that by September many of the dealers will have their 1913 models and will enter them in the run, which will be through Maryland, Pennsylvania and Delaware.

It is probable the club will promote another sociability run in July. The last one, held in May, was a big success, financially and otherwise, and the next event will be on an even bigger scale.

USED CAR SHOW A FAILURE

Boston, Mass., June 15—Boston's first—and undoubtedly its last under similar management—used or second-hand car show, for which so much was predicted by its promoter, O. D. Corbett, proved a failure. Mr. Corbett leased the Arena building and started out to get all the dealers to go in on the show, planning to keep out the second-hand men. But he did not get very many. Publicity was meager and there was frostiness about the



BUICK WINNING FREE-FOR-ALL IN CINCINNATI HILL-CLIMB

Milwaukee Awaiting Race Sanctions

As Soon as A. A. A. and A. C. A. Approve Vanderbilt and Grand Prix Plans Badgers Will Start Preparing Circuit for Big Struggle Next September—Soldiers Promised

MILWAUKEE, Wis., June 18—By the end of the week it is believed that sanctions will have been issued by the American Automobile Association and the Automobile Club of America for the Vanderbilt, Pabst and Wisconsin Motor cups and the grand prix road races in Milwaukee on September 17 and 21. Bart J. Ruddle, race secretary of the Milwaukee Automobile Dealers' Association, left for New York Saturday night, laden with several suit cases full of information, blanks, guaranties, et al., which doubtless will result in the grant of the A. A. A. and A. C. A. permits.

More than 400 laborers will be placed at work on the cup course in the town of Greenfield at the moment Mr. Ruddle wires the M. A. D. A. that the sanctions have been issued. While there is absolutely no reason to believe that the sanctions will be refused, the M. A. D. A. is proceeding with care and desires to avoid any legal difficulties in regard to expending moneys contributed by citizens by going to work on the public roads before the last official detail has been attended to. With ten gangs of workmen on the job, it will not take long to rebuild the 9-mile circuit into the prescribed 8.725 mile race course.

E. G. Williams, personal representative of William K. Vanderbilt, Jr., inspected the course last week. Mr. Williams, being an expert road engineer, and formerly connected with the New York state division of highways, is regarded as an authority and his opinion that the Milwaukee course should develop into the finest road racing circuit ever prepared in America has caused much good feeling in Wisconsin. An innovation in road race courses is proposed by the M. A. D. A. Each of the four principal turns will be banked and constructed of concrete. The largest turn, at the south end of the course, will be rebuilt to a radius of 1,500 feet and will be banked nearly as high as the Indianapolis speedway turns, according to present plans. The turn will be built on private property, as the public roads are hardly fit for treatment.

The policing of the course has been settled in all details, and Secretary Ruddle took with him to New York contracts with the Wisconsin National Guard which may astonish the New Yorkers for the size of the army that will patrol the course. A different set of guards will probably be on the course on each of the 2 days of racing.

KANSAS CITY HOLDS TRACK MEET

Kansas City, Mo., June 16—At the most successful race meet ever held in Kansas City Louis Disbrow, driving the Simplex Zip, lowered the 5 and 1-mile local mile circular track records held by Barney Oldfield. Disbrow lowered the 1-mile record at Elm Ridge track from :52⅘ to :51⅕ and the 5-mile record from 4:46⅘ to 4:39⅘. Eight thousand persons witnessed the races.

SWINEHART PLANS EXPANSION

Akron, O., June 18—The Swinehart Tire and Rubber Co. of this city has taken a 90-day option on a 25-acre factory site at East Akron. It is expected that the deal will be closed in a few days and it is known that the company has plans for a new factory, to be one of the largest in the city. The Swinehart company is having a remarkable increase in business.

MOSLER SUES DEPARTMENT STORE

New York, June 17—Bloomingdale Brothers, New York department store corporation, has been sued in the United States district court on behalf of A. R. Mosler for alleged infringement of the Mosler patent rights. The charge made against the department store is the advertising and sale of Mosler plugs at a smaller price than the one fixed in the license under which the plugs are being handled.

MAY ABANDON OLDFIELD BILL

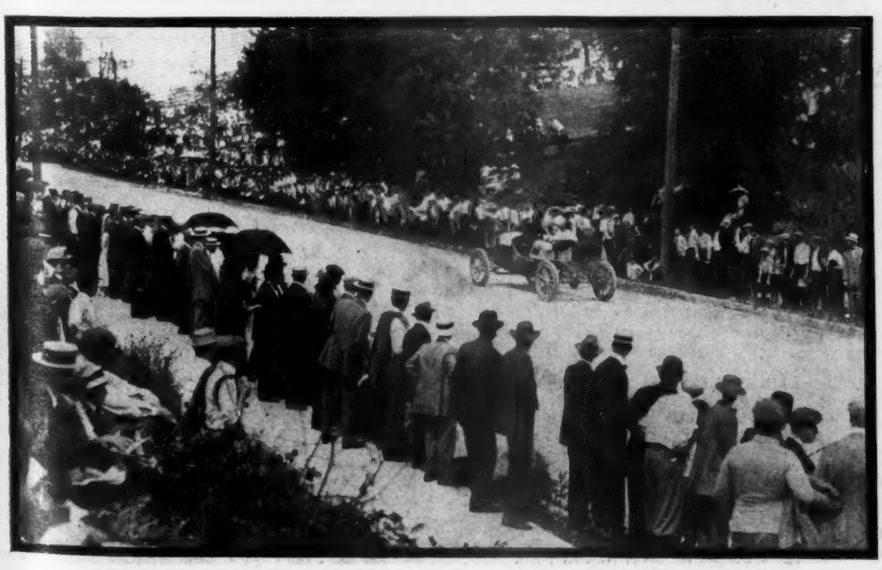
Washington, D. C., June 18—a semi-official announcement has been made that the patents committee of the house has decided to abandon the Oldfield bill. While positive action throwing the measure into the discard has not been taken, the committee has determined to throw over the recodification feature and center its action on clauses 17 and 32.

These sections of the bill refer to the compulsory working and the use clauses of the measure. Even these sections probably will be modified before coming to a vote in committee.

The proposed changes will loosen the hold of the law on the inventor while maintaining a grip on the corporation-purchaser. Just how this is to be accomplished is veiled in more or less mystery. The intention of the lawmakers is to prevent trusts from acquiring patents for the purpose of pigeon-holing them and preventing the public from getting the use of such patents except under onerous circumstances.

SUBURBAN RUN FOR ELECTRICS

New York, June 17—With the contest feature entirely eliminated, the annual suburban run of electric pleasure cars last Saturday was completely successful. Despite the threatening weather, fourteen entrants lined up at Columbus circle and after a run to Bronxville, the whole fourteen finished without a skip, making the 45 miles in splendid style. No mechanical or battery trouble was experienced throughout the run and but for the lowering clouds and scattering rain the affair proved enjoyable.



STANLEY AVENUE HILL, SCENE OF CINCINNATI CLIMB

CROSSING NORTHERN UTAH

Routes and Touring

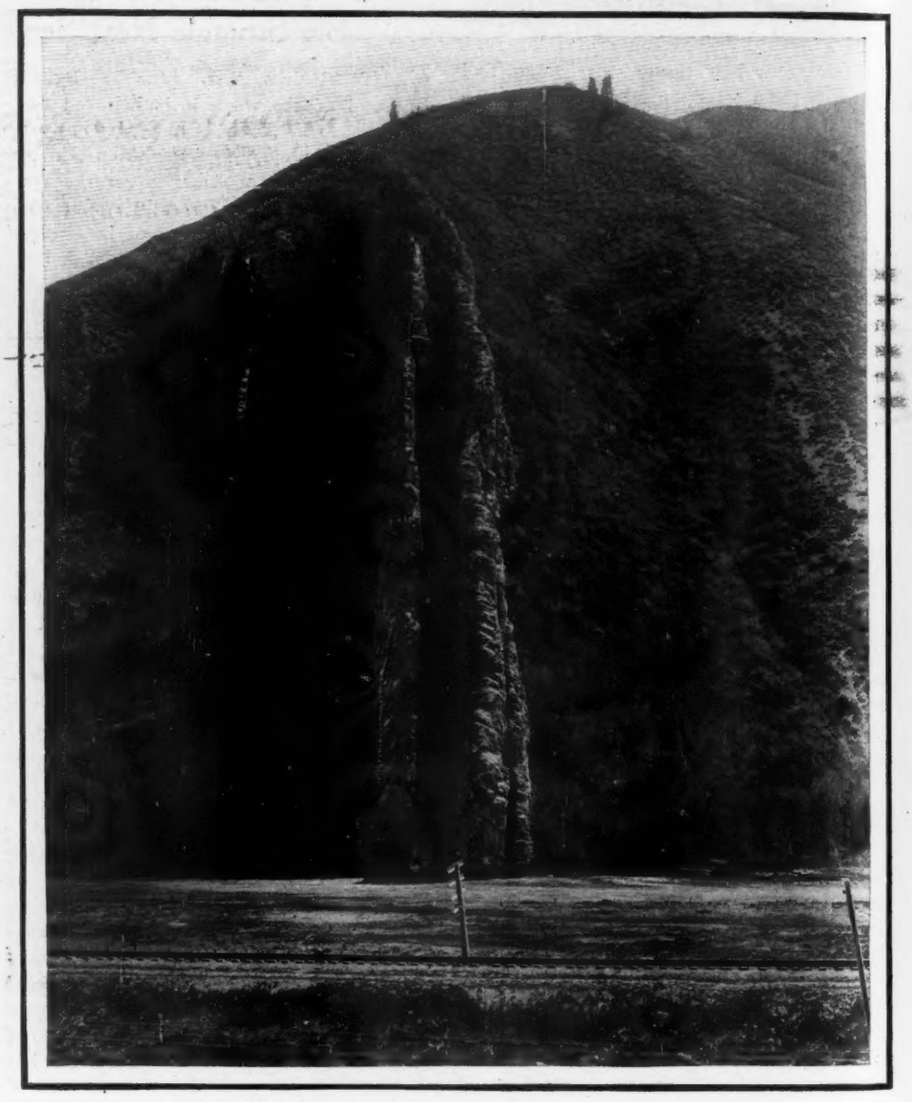
OGDEN, UTAH—Editor Motor Age—The accompanying map and running directions gives the best road across the northern part of Utah. It is a good mountain road with many miles of the central portion excellent, and is being marked with large signs the entire distance. Excepting one hill in entering and another in leaving the state, there are no difficult grades, and but one patch of sand usally made on the high gear. The wrong road is from Corinne to Kelton and Terrace, around the north end of the Great Salt Lake.

The greater part of Utah from about Ogden to the western boundary was once occupied by the prehistoric Lake Boneville. On entering the state from the west one follows a water course down a canyon near Ogden, and from there on in the old lake bottom until leaving the state, except in crossing a few high ridges which were islands or promontories in the lacsutrian period. It is apparent that a country once a lake bottom will not be found rugged or hilly; but that the chief difficulty will be from low or marsh places, which are entirely avoided by this more northern route. Considerable interest is attached to the works of Nature at Devil's Gates, near Ogden, Utah, which is shown in one of the accompanying illustrations. At some remote time the Weber river at this point passed down the gorge in nearly a straight line. A roughly semi-cylindrical portion of the mountain detached itself from the wall, shown in the illustration, and fell to the south, blocking the stream like a huge dam, causing the water to set back for miles, and finally filling the space above the natural dam with detritus and forming a comparatively level valley now occupied by farms and villages. The river finally cut a new semi-circular channel around this obstruction next to the mountain from which the mass was detached, hugging close to the perpendicular wall.

This obstruction of natural dam and river effectually blocked any attempts at temporary road building. When the railroad was constructed, a wagon road though narrow and steep, was constructed around this point, which is called Devil's Gate. At present the road is being widened and provided with an iron railing. Nature prevented the Mormon emigrants from reaching the valley where Ogden is now situated, and compelled them to climb over the mountains to the present site of Salt Lake City. If this point could have been negotiated, the capital of Utah would have been located where Ogden now stands.

The climb made west of Lucin is up the western wall of this extinct lake. Half of the road through Nevada is on the bottom of a similar extinct lake.

There are good accommodations for man and car at Evanston, Wyo.; first-class hotels and garages at Ogden, good accommodations at Brigham City, and one may stop at Corinne, Tremonton, Snowville, Kelton and Lucine, and will find a good hotel at Montello, Nev.

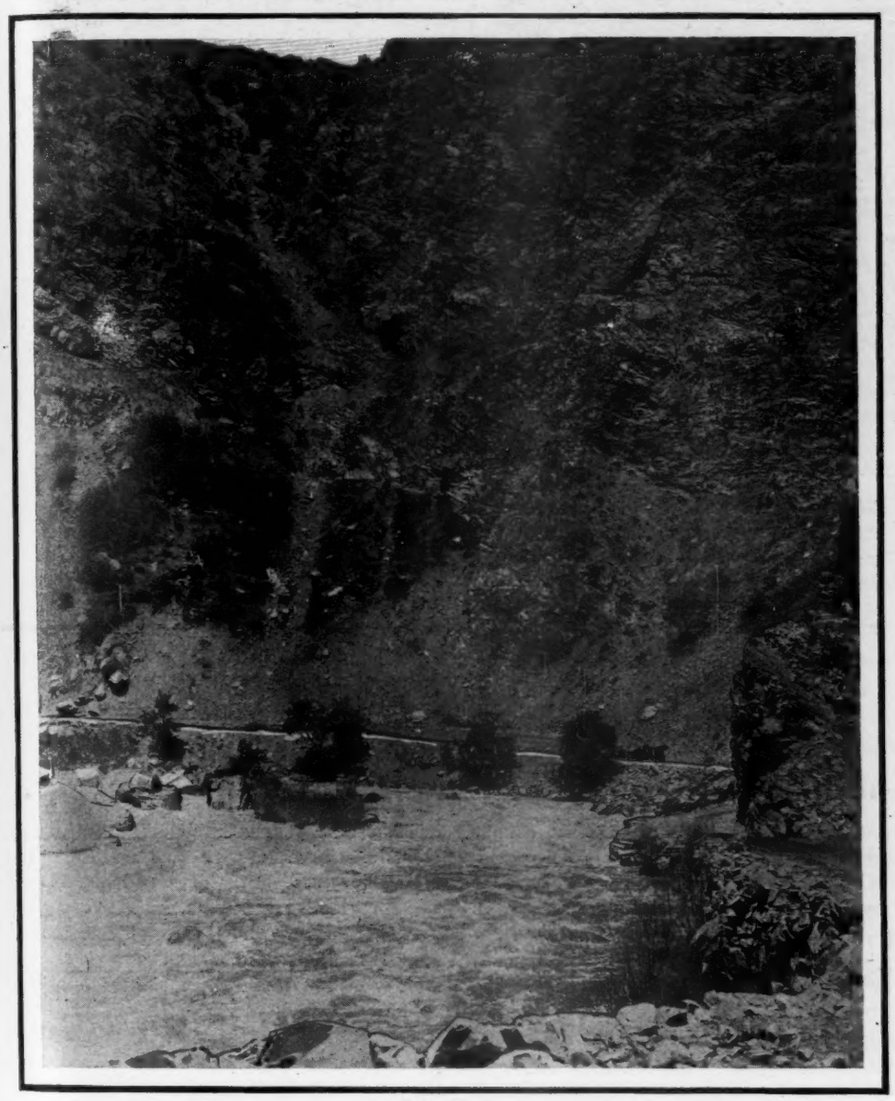


DEVIL'S SLIDE IN WEBER CANYON, ON THE TRANSCONTINENTAL ROUTE THROUGH UTAH

Comfortable time from Evanston to Ogden is 6 hours going west, or 7 hours east. Many motorists make the distance from Ogden to Montello in one day, but the less strenuous will use two, making Snowville or Kelton the first day. Running directions headed west are as follows:

00.0 EVANSTON, WYOMING: Leave town going south up a hill, but soon turn east over good mountain road, except high centers 6 to 9 miles out.
10.6 SUMMIT OF WASATCH RANGE: Go down steep hill and continue down grade with increasingly fine scenery and roads growing better all the way to Ogden.
18.6 CASTLE ROCK.
25. EMORY STATION.
34.2 STONE HOUSE: Right hand to Echo.
34.6 ECHO: Hotel, blacksmith shop, stores, gas. For about 4 miles out of Echo considerable sand, about the only sand on the transcontinental line in Utah.
42.4 CROYDEN: Store, gas, oil, blacksmith shop; 42.5, turn left; 43.6, take left fork; 44.1, cement works; 44.4, keep on right side of river.
42.5 DEVIL'S SLIDE STATION.
53.2 MORGAN: County seat of Morgan County. Town lays left of main road.
61.5 PETERSON: Store, gas, oil.
66.7 GATEWAY STATION at left, around Devil's Gate, good road, but narrow and steep, under railway bridge, cross river and remain on left of river for about 12 miles. When the Mormons first entered Utah this road around Devil's Gate was not cut; hence they climbed over the mountain from Echo to where Salt Lake City now stands.
78.1 RIVERDALE: Cross Weber River going directly east.
82.4 OGDEN.
00.0 OGDEN: Excellent improved and marked road to
22.1 BRIGHAM CITY: County seat of Box Elder County, a county larger than the state of Rhode Island, and extending to the Nevada line.
28.6 CORINNE: Hotel, stores, gas, oil. Leave Corinne, going west for about one mile, along railroad and ditch; turn north on section line roads, leaving the railroad and old road formerly taken by tourists to be picked up again and

Information



SHOWING THE WAGON ROAD AROUND DEVIL'S GATE NEAR OGDEN WHICH IS USED BY MOTORISTS.

crossed at Lucin, about 150 miles to the west.

34.1 BEAR RIVER CITY.

40. TREMONTON: Hotel, stores, gas, oil. About 6 and 12 miles beyond Tremonton good water may be had, and again at Blue Springs water fit for the machine, but not to drink.

75.0 SNOWVILLE: Very small, but clean hotel, gas, oil.

110. KELTON: Hotel, store, gas, oil.

166. LUCIN: Cross railroad and go up mountain to the left, cross bridge, take center road, do not take left hand road, continue on up impossible looking mountain; 4.9 miles beyond railroad crossing is the top of the mountain where road turns to the right.

178. TECOMA.

185. MONTELLO, NEV.: Good hotel and stores.

—C. J. Stilwell.

PHILADELPHIA TO DETROIT

Philadelphia, Pa.—Editor Motor Age—What is the best and shortest route between Philadelphia and Detroit? I have a Blue Book.—O. C. Schmidt.

The best shortest route to follow is No. 270 to Coatesville, Lancaster, York and Gettysburg. Take up No. 484 and go to Hagerstown through Fairfield and Waynesboro. A routing to Greencastle and Chambersburg can be found in the first part of No. 616. At Chambersburg head west through McConnellsburg to Bedford, using No. 481 from mileage 24.5 on. No. 521, the longest of three possible routes, is given preference and passes through Johnstown, Blairsville and Greensburg to Pittsburg. Via Washington, Pa., and the National road, No. 557 lands you in Wheeling, W. Va., from which point volume 4 of the Blue Book is required for the remainder of the trip. In this middle west book route No. 673, by way of Cambridge to Zanesville, and 673A, to Hanover, Newark and Granville, take you to the Ohio capital city, Columbus, over good roads.

There are two good roads to Toledo from which you can choose, one being 132.7 miles, through Marion and Fostoria, route No. 633; the other, 142 miles, through Marysville and Findlay, by following No. 634. If the weather is perfect, route No. 567 to Detroit, via Monroe, can be used, but if conditions are the least bit unfavorable Motor Age advises you to take the longer one via Ypsilanti.

A route that is very hilly but scenic and which should only be taken under the very best weather conditions leaves Pittsburgh for Steubenville by following No. 678, to Canton by No. 675 and No. 670 to Mansfield, Bucyrus and Upper Sandusky, where the Columbus-Toledo road comes in.

GOING TO THE COAST

Randolph, Wis.—Editor Motor Age—Please outline the following trips; one to Los Angeles, via Denver, which will be made in October; the other from Randolph to Lima, to be made in June.—J. L. Richards.

By motoring through Beaver Dam, Columbus, Danville, Elba and Lowell to Watertown, you strike roads that are outlined with running directions in the Blue Book 4. You proceed east through Ixonia to Oconomowoc, thence south to Lake Geneva by way of Dousman, Eagle, Little Prairie, Lauderdale Lakes and Elkhorn. The best road to Chicago extends through Hebron, Greenwood, Ridgefield, Algonquin, Elgin, Ontarioville, Bloomingdale, Addison, Maywood, Oak Park and Chicago.

It is best to take the South Bend road out of Chicago as far as La Porte, which will be through Washington and Jackson parks, South Chicago, Whiting, East Chicago, Calumet, Grasselli, Gibson, Hessville, Highlands, Hobart, Wheeler, Valparaiso, Westville, Pinhook and La Porte. Turn south from La Porte through Kingsbury and Union Center, then east to Kingsbury Donaldson, Plymouth, Bourbon, Etna Green, Atwood, Warsaw, Pierceton, Larwell, Columbia City, and Fort Wayne.

The Fort Wayne-Lima stretch routes through New Haven, Van Wert, Delphos, and Elida.

As for the route to Denver and Los Angeles. From Beaver Dam and Columbus, head southwesterly to Sun Prairie, Madison, Pinebluff, Blue Mounds, Barneveld, Ridgeway, Dodgeville, Mineral Point, Calamine, Platteville, Elm, Cuba, and cross iron bridge over the Mississippi river into Dubuque, Ia.

A volume 5 Blue Book can now be used to the coast, and first takes you over the Hawkeye highway through Julien, Centralia, Epworth, Farley, Dyersville, Earlsville, Manchester, Independence, Waterloo, Cedar Falls, New Hartford, Parkersburg, Austinville, Ackley, Iowa Falls, Alden, Wilkie, Williams, Blairsburg, Webster City, Fort Dodge, Moorland, Rockwell City, Sac City, Schaller and south to Odebolt,

WEBER RIVER AND CANYON ON THE TRANSCONTINENTAL ROUTE NEAR OGDEN, UTAH

Kiron, Deloit, Denison, Arion, Dow City, Dunlap, Woodbine, Logan, Missouri Valley, Crescent and Council Bluffs.

Cross into Nebraska to Omaha, and the North Platte river road extends through Elkhorn Waterloo, Fremont, Ames, North Bend, Rogers, Schuyler, Benton, Columbus, Duncan, Silver Creek, Clarks, Central City, Chapman, Grand Island, Alda, Wood river, Shelton, Kearney, Elm Creek, Lexington, Willow Island, Gothenburg, Maxwell, North Platte, Sutherland, Paxton, Ogalalla, and Julesburg, Colo. Instead of continuing on the Platte route right into Fort Morgan and Denver, go west through Nebraska, touching at Chappell, Lodgepole, Sunol, Sidney, Herdon, Jacinto, Kimball, Bushnell, and entering Wyoming through Pine Bluff, Egbert, Burns to Cheyenne.

You might enter Denver over the road via Greeley, and leave by way of Estes park and Fort Collins to Laramie, Wyo. on the transcontinental road.

Thus the towns on entering Denver would be Carr, Dover, Nunn, Ault, Eaton, Lucerne, Greeley, Evans, Platteville; and leaving as above mentioned the route lies through Broomfield, Lafayette, Boulder, Lyons, Estes park, and along the Big Thompson river to Drake and Loveland, where you head north through Fort Collins, La Porte, Ingleside, Red Buttes, Wyo., and Laramie.

For the rest of the trip you are referred to the issue of May 30, pages 26 and 27, which is devoted to transcontinental touring.

There are, of course, many roads other than we have outlined which you can follow; for instance, the river-to-river road in Iowa, a more southern road through Nebraska, which is shorter than the North Platte when you are en route for Denver, but you will encounter miles and miles of barren prairie land with just the wagon road running through it.

WEST VIRGINIA INQUIRY

Sistersville, W. Va.—Editor Motor Age—I want to motor to Philadelphia, Pa., and would like to know how many miles it is, and the best route. I would like to go by way of Wheeling, W. Va., Washington, Pa., and Pittsburgh. But if there is

Road Conditions from Louisville and Nashville to Mammoth Cave, Ky.

EUGENE STRAUSS, of the Louisville Automobile Club, has just returned from a pathfinding trip through the southern part of Kentucky for the purpose of securing touring data. Despite an accident which delayed the party several days, it was by far the most satisfactory trip ever made, for the data when added to the club's book is expected to lend impetus to touring in the southern part of the state.

Between Louisville and Mammoth Cave a new and short route has been laid out. From the cave south to Nashville, two routes were mapped by the pathfinders; one over a road that is part dirt, which is fairly good in the summer months, while the other is practically all pike with 16 miles of rough road in Kentucky and 8 in Tennessee, which will be repaired this summer. Twelve miles of the old L. and N. pike, which was given a lot of undesirable publicity following the 1910 Glidden tour, is being reconstructed from Bear Wallow north to Green river above Canmer. From Canmer north to Hammondsville there is 8 miles of rough going, 4 miles of which will have to be entirely rebuilt, the remaining 4 resurfaced.

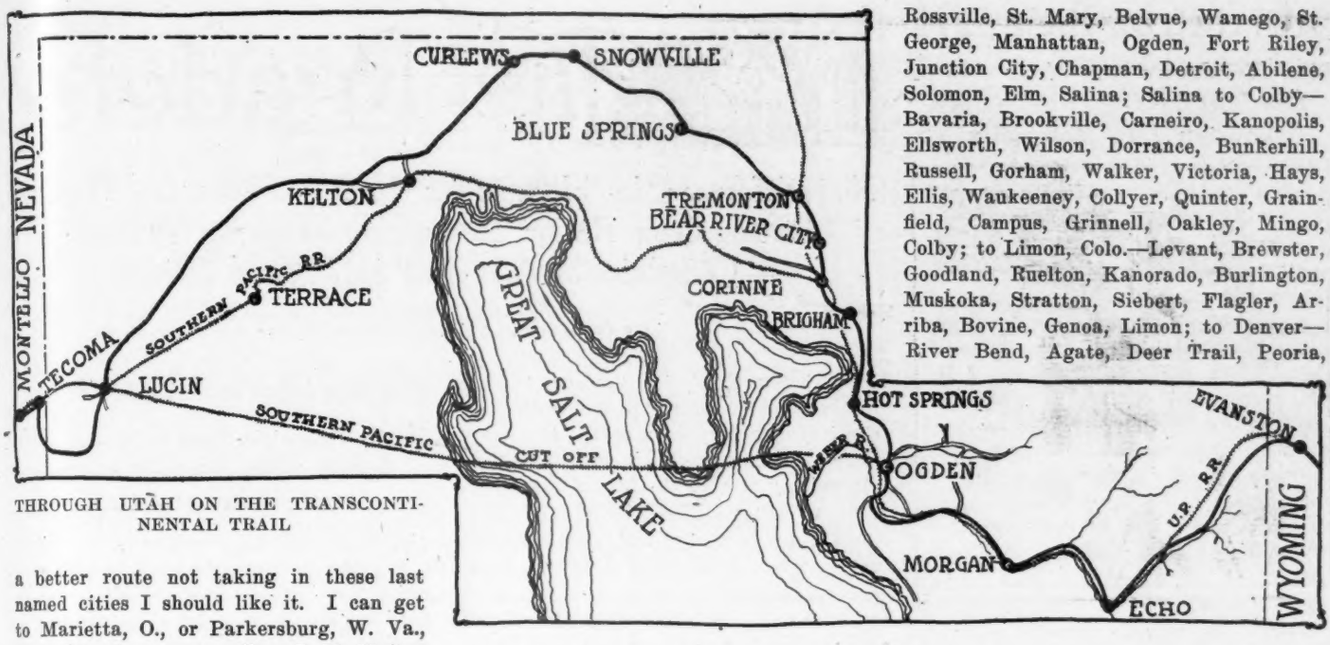
From Hammondsville to New Haven the pike has been resurfaced with gravel and with the exception of a few rough spots the road is in good condition. The bad stretch will be repaired at once, according to Dr. Jones, who has the work in charge.

That part of the pike in Hart county probably has been the worst of the roadway, but the farmers in that section are realizing the importance of this road to them and are doing everything in their power to push the work along. The road has been divided into three sections—the northern section being constructed of nigger-head rock, that is, the loose stone picked up on the fields are laid by hand and over this is placed a layer of dirt to cushion and the whole is then surfaced with gravel. The next two sections are to be macadam. The property owners have torn down their stone fences and hauled stone in great piles to be crushed. Two of these piles that the pathfinding car passed were 20 feet high and covered about half a city block. A stone crusher started breaking the rock Monday. The entire Hart county division is expected to be finished in 3 months.

Down in Barren county the roads are fair from the county line to Glasgow Junction, but from the latter place to the Warren county line is bad. The roadbed is in perfect condition, but needs resurfacing. From Bowling Green to Franklin the highway is in splendid condition and on to Nashville is good with the exception of about 8 miles just north of Goodlettsville, Tenn., to the Kentucky line. This is rough in a number of places with several hills for the motorist to climb.

Tourists may drive their cars from Glasgow Junction to Mammoth Cave by running their cars slowly or may leave them and go over on the train.

A short route from Hodgenville to Munfordsville is over dirt and gravel roads and is good with the exception of 6 miles which is through gateways and on private property. It is better when dry than the pike has been, but will be little used, as the pike will be in good condition when fall touring opens. From Munfordsville to Cave City there are two routes, one an excellent pike except for a mile that is rough. Toll has been reduced on the Green river bridge from $1 to 50 cents. Between Cave City and Glasgow Junction there is a good dirt and pike road. From Cave City to Glasgow the pike is good and so is the road to Scottsville as far as Barren river. From the river to Scottsville metal is being placed on the road, which has been well graded. From this town to the Tennessee line the road has been rebuilt and made a free pike, while Sumner county, Tennessee, has voted to issue $200,000 in bonds to secure funds with which to build highways in that county. Eight miles through Sumner county is over hills and through creek bottoms with numerous washed places. The Gallatin-Nashville road is fine. A fall tour to Mammoth Cave can undoubtedly be planned.



THROUGH UTAH ON THE TRANSCONTINENTAL TRAIL

a better route not taking in these last named cities I should like it. I can get to Marietta, O., or Parkersburg, W. Va., from this place very easily.—J. H. McCoy.

For Wheeling motor to Sardis, O., New Martinsville, W. Va., Clarington, O., Woodland, W. Va., Graysville, Moundsville, Limestone, Sherrard and Wheeling. Running directions from Wheeling through Pennsylvania can be obtained from the Blue Book, volume 3. To Pittsburgh you route through Elm Grove, West Alexander, Claysville, Washington, Canonsburg, Bridgeville, Carnegie, Pittsburgh, 62 miles. Pittsburgh to Wilkinsburg, Wilmerding, East McKeesport, Circlesville, Irwin, Adamsburg, Grapeville, Greensburg, Crabtree, New Alexandria, Blairsville, Armagh, Cramer, Johnstown, Dale, Geistown, Windber, Felix, Pleasantville, and Bedford is 117 miles. Bedford to Gettysburg, 80 miles, is through the Pennsylvania mountains over mostly rough and hilly roads to Chambersburg and fairly level pike to Gettysburg and routes through Mt. Dallas, Everett, Harrisonville, McConnellsburg, Fort Loudon, St. Thomas, Chambersburg, Fayetteville, Cashtown, McKnightstown, and Gettysburg.

To Philadelphia, it is 142 miles, through Littletown, Hanover, Abbottstown, Thomasville, York, Wrightsville, Columbia, Mountville, Lancaster, Strasburg, Sadsburyville, Coatesville, Downingtown, Exton, Paoli, Dalesford, Berwyn, Devon, Wayne, Rosemont, Bryn Mawr, Ardmore and Philadelphia.

PADUCAH TO DENVER

Paducah, Ky.—Editor Motor Age—I intend to make a trip in my car from Paducah to Denver, Colo., and will appreciate maps of the best road from St. Louis on. —Lee Nance.

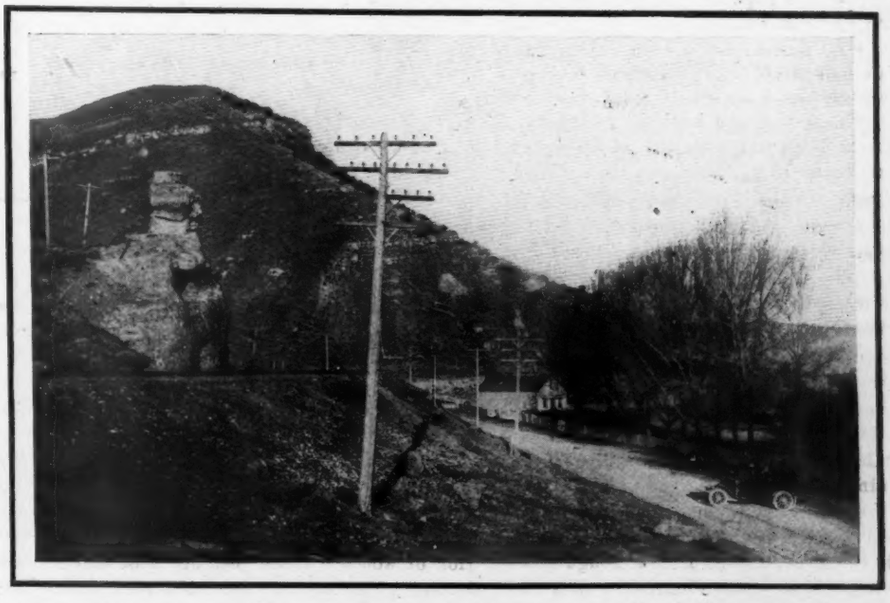
To reach Kansas City you will pass through Wellston, St. Charles, Cottlesville, Wentzville, Forestell, Warrenton, Jonesburg, High Hill, Montgomery, Wellsville, Martinsburg, Mexico, Clark, Renick, Higbee, Yates, Armstrong, Glasgow, Giliam, Slater, Marshall, Mt. Leonard, Blackburn, Corder, Higginsville, Mayview, Odessa, Oak Grove, Grain Valley, Blue Springs, Alton, Independence, Centropolis, and Kansas City.

You are given an option on a route leaving the above at High Hill and routing through Danville, Mineola, Williamsburg, Calwood, Fulton, Millersburg, Columbia, Midway, Rocheport, New Franklin, Boonville, Arrow Rock, Marshall, Waverly, Dover, Lexington, Myrick, Wellington, Levasy, Buckner, Blue Town, Independence, Kansas City.

The Golden Belt route through Kansas is the shortest road, and is over good natural dirt with some gravel and macadam. To Topeka the itinerary is—Muncie, Bonner Springs, Lenape, De Sota, Endora, Lawrence, Midland, Buck Creek, Perry, Grantville, Parramore, Topeka; Topeka to Salina—Morse, Silver Lake, Kingsville, Rossville, St. Mary, Belvue, Wamego, St. George, Manhattan, Ogden, Fort Riley, Junction City, Chapman, Detroit, Abilene, Solomon, Elm, Salina; Salina to Colby—Bavaria, Brookville, Carneiro, Kanopolis, Ellsworth, Wilson, Dorrance, Bunkerhill, Russell, Gorham, Walker, Victoria, Hays, Ellis, Waukeeney, Collyer, Quinter, Grainfield, Campus, Grinnell, Oakley, Mingo, Colby; to Limon, Colo.—Levant, Brewster, Goodland, Ruelton, Kanorado, Burlington, Muskoka, Stratton, Siebert, Flagler, Arriba, Bovine, Genoa, Limon; to Denver—River Bend, Agate, Deer Trail, Peoria, Byers, Bennett, Watkins and Denver.

The distance from St. Louis to Kansas City by way of Mexico and Glasgow, which are the only suitable night stops, is 323 miles; by way of Columbia it is 300 miles. Salina is 211 miles from Kansas City; Colby, 225 miles further; Limon, Colo., is 149 miles from Colby, and Denver 89 miles from Limon. For running directions you are referred to Blue Book, volume 5, which also has the required maps, city as well as the whole tour.

A great many tourists would prefer the Santa Fe trail even though it is considerable longer. There are excellent hotel and garage accommodations along the trail the entire distance, and you pass through Emporia, Newton, Hutchinson, Ellinwood, Great Bend, Dodge City, Garden City, Syracuse, La Junta, Pueblo, and Colorado Springs to Denver.



PULPIT ROCK IN WEBER CANYON, SO NAMED BY MORMON EMIGRANTS WHO SPENT A SUNDAY HERE

Starting on the Spark

Has Tendency to Wear Motor Bearings But Does Not Usually Shorten Life Materially

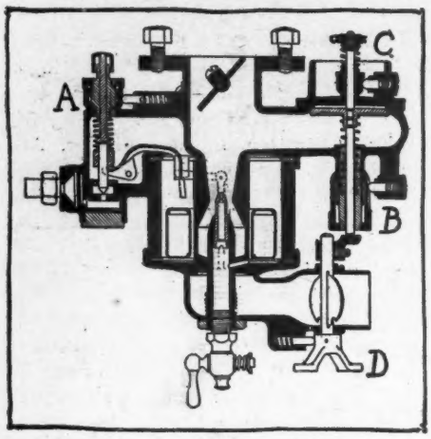


FIG. 1—INTERIOR OF STROMBERG, D

PIPER CITY, Ill.—Editor Motor Age—What is the difference between the A. L. A. M. and S. A. E. rating, if any?

2—What is the difference in horsepower between a 4-inch bore and 4-inch stroke and 4-inch bore and 4½-inch stroke in same motor, and what is the rule for obtaining it?

3—How is piston travel figured to get 1,000 feet per minute; is the whole piston travel figured in or just the power stroke?

4—Is there any air-cooled motor in use that is a success in every way and under all conditions?

5—Are there any eight-cylinder motors in use in motor cars?

6—Are any of the racing cars geared 1¼ to 1 or higher?

7—Does it do any harm to start a motor off the spark?

8—Can an aviator stop his motor while flying and start it again while in the air, and if so, does he start it off the spark, or how?

9—What are the names and addresses of companies building motor car tops in Chicago?

10—Can a car be built weighing 2,500 to 2,800 pounds that will be strong enough to carry a 45-horsepower motor and give good satisfaction?—A Reader.

1—The S. A. E. rating formerly was the A. L. A. M. rating. When the A. L. A. M. went out of existence the S. A. E. took over its standards, among which was the horsepower formula.

2 and 3—No difference according to S. A. E. rating. See Motor Age for May 9, page 39, for explanation of power ratings.

4—Yes; both the Franklin and Cameron cars have many satisfied users.

5—The French de Dion has an eight-cylinder stock model.

6—No; in the 500-mile race at the Indianapolis speedway, May 30, Wishart's Mercedes was geared 1⅝ to 1, which was the highest ratio used.

7—There probably is a tendency to wear the bearings of the motor, due to the sudden impact of explosion on the stationary piston. Ordinarily this is not sufficient to appreciably shorten the life of the motor.

8—An aviator cannot stop the crankshaft from revolving and start it again unless there is a clutch between motor and propeller and even then the attempt is dangerous. However, he can cut off ignition for a short time and then throw it on again, allowing the motor to run as before.

9—Auto Cape Top Co., 2334 Michigan avenue; Chicago Auto Top Co., 1507 Michigan avenue; Chicago Carriage and Trimming Co., 1908 Indiana avenue; Chicago Coach and Carriage Co., 1223 Michigan avenue; Cisler & Serson, 3111 Michigan avenue; Empire Auto Top and Supply Co., 1219 Michigan avenue; London Auto Supply Co., 2540 Wabash avenue; Monarch Auto Top and Supply Co., 1461 Michigan avenue; Parsons-Curtis Top Co., 1312 West Harrison street; Ross & Browne, 6127 Cottage Grove avenue; Stone & Sons, 1658 Ogden avenue; Wayman & Murphy, Lake and Sangamon streets; Weiss & Son; 4801 Cottage Grove avenue.

10—Probably; but most cars weigh about 104 pounds per horsepower.

RECHARGING MAGNETS

Seward, Neb.—Editor Motor Age—How can magneto magnets be tested to tell how strong they are and if they need remagnetizing?

2—Could the polarity of magnets be changed by sufficient charging or would it merely weaken the magnetism?

3—How many dry cells would it take to charge magnets with an electro magnet such as was described in the November 17, 1910, issue of Motor Age?—A Reader.

1—This can only be told by the pull on the armature or an iron or steel bar. It requires experience with the particular make of magneto. No definite rule can be laid down. Better send it to the nearest factory branch.

2—Sufficient charging in the wrong direction would weaken the magnetism at first until there was no magnetism. It would then begin to build up in the reverse direction.

3—It would be much too expensive to use batteries. Better use power from the lighting wires.

The Readers'

No Difference in Horsepower Rating Formulas—Highest Racing Gear Ratio—Recharging Magneto Magnets —Complains of Acetylene Self-Starter System

Engine Starter Experience

South Dakotan Has Unusual Difficulty with Acetylene System—Opinions Asked

ABERDEEN, S. D.—Editor Motor Age—I have an acetylene starter on my car, which was installed at the factory, but I have not been able to get any satisfactory service out of it. I have spent considerable time and money trying to get the starter to do what it was intended to do, but after trying all the schemes recommended by the makers of the car and the makers of the starter, I have found it a failure. In investigating, I find three other starters of the same make on three other cars here, all of which I find are a failure. They not only fail to give a start to the engine, but after repeated trials they soot the engine up very badly. I am very anxious to hear from other users of this device as to their experience with it. It is obviously to the interests of all motorists to know if these things are what they are claimed to be, and if they are not, it is time for them to know it. I have given both the makers of my car and the makers of the starter every chance to make the equipment work, but they have failed. They claim I am the only one, or at least one of very few, who fail to get the results from the starter which they claim for it. However, I happen to know of at least three others in the same fix, and they are the only ones I know of that have the same make of starter.

Any reader of the Motor Age who has had any experience with a gas starter is invited to kindly let his fellow motorists have the benefit of it. I have owned seven different cars in the past 7 years, and know enough about them to know the fault is not in the engine, nor the ignition, as the car will start readily on a quarter turn any time with no aid whatever from the self-starter.—Old Reader.

Your experience is unique if the starter fails to work at all. Ignition starters cannot be expected to start every time, because the motor may stop on dead center. They should work at least four out of five times, however. Most users of this type of engine starter seem to be well satisfied with them. It would be impossible to venture an opinion as to the trouble without seeing the car.

Clearing House

Interested in Eight-Cylinder Cars—Clutch Brake Stops Spinning—Some Aarrangements for Making Speed Changes Easy—Adjustment of Stromberg Carbureter

Forms of Clutch Brakes

Methods Used to Prevent Spinning When Shifting Gears Are Illustrated

CROPSEY, Ill.—Editor Motor Age—Will motor car tires filled with tire filler require any extra power to start and keep car under motion?

2—What effect does the tire filler have on steering gears and axles?

3—Can any kind of tire protectors be put on the No-Rim-Cut tires so they will not slip or creep on the casing?

4—What is the firing order of the model 17 Buick?

5—What would Motor Age advise in the way of a brake on a model 17 Buick clutch shaft to stop the clutch shaft when the clutch is disengaged, so that when changing from first to second speeds it will not clamor. Is it possible to change these without any noise? In changing from second to third speeds there is no clamor. Would it be hard on the clutch lining to start the car on second speed to avoid gear-clamoring?

6—How does one adjust a model D Schebler carbureter on the model 17 Buick for low and high speeds?

7—How should a model L high-speed carbureter be adjusted on a model 17 Buick and for low and high speed? Will it throttle down as well on slow speed as the model D, and work as well on high speed without readjusting?

8—Will spark plug pumps to inflate tires injure the inner tubes?—D. E. C.

1—The added weight requires slightly more power in starting and speeding up; but also exerts a flywheel effect to make the car run less jerkily.

2—Practically no effect.

3—Any of the first-class protectors will work on this tire without creeping if applied according to directions.

4—The firing order of the model 17 Buick is 1-3-4-2.

5—In Fig. 3 are shown three methods employed by some manufacturers of stopping the clutches from spinning. The device at the left consists of a fiber disk arranged on the end of a plunger which is slidably mounted in a guide with a spring behind it. When the clutch F is drawn away from the flywheel, the edge of it is brought into contact with the fiber disk, which has the desired braking action upon it. The same principle is employed in the design shown at the right. A little arm with a fiber disk A on the end of it, is adjustably mounted on the bar that operates the clutch; so that as the clutch is released from the flywheel, the disk is made to bear upon the edge of the clutch. The central illustration shows a means whereby the spinning of either a cone or multiple-disk clutch may be retarded without applying the brake directly to the clutch. A round metal flange F1 is secured to the shaft or universal joint housing between the clutch and gearset, a piece of flexible band-iron B bent into the shape illustrated and with a fiber plate P on the lower end of it, is secured to the crossmember of the frame. A bent rod R connected to the clutch operating mechanism automatically brings the fiber friction plate P into contact with the flange F1 when the clutch is released. A spring S is fitted between the end of the rod and the band-iron strip B so that the necessary flexibility is obtained.

Yes. To start the car on the second speed will be hard on the clutch lining and all the rest of the transmission system as well as the motor.

6—This was described and illustrated in the Readers' Clearing House, Motor Age, May 16, page 31.

8—This was described and illustrated in the Readers' Clearing House, Motor Age, April 4, page 37. Model L usually is considered more flexible for most motors than model D.

9—No; unless they permit oil to pass into the tubes.

EIGHT-CYLINDER CARS

Chicago—Editor Motor Age—Are there any eight-cylinder pleasure motor cars made in America? In Europe?

2—Does the Fal Motor Co. make an eight-cylinder car?

3—Are there any eight-cylinder cars in Chicago and, if possible, the names and addresses of the owners?—Harry L. Malby.

1—There are no eight-cylinder motor cars regularly made in America. There is an eight-cylinder de Dion, made in Paris, France.

2—No.

3—John Schlig, Rockford, Ill., owns the only eight-cylinder car in this state, so far as known.

Adjusting Reo Carbureter

How the Stromberg Model D Used on 1911 Reo Car Is Set for Greatest Power

ELGIN, Ill.—Editor Motor Age—I would like some information in regard to the adjustments of a Stromberg carbureter on a Reo 1911 model.—Theo. L. Loftsgard.

The carbureter used on this car is illustrated in Fig. 1, and it should be adjusted as follows: See that the level of the gasoline in the float chamber is about ⅞ inch above the bottom rim of the float chamber which holds the glass. To lower the level turn nut A down or to the left, to raise the level turn it up or to the right. This adjustment is set at the factory and usually requires no further attention. Next turn up the adjusting nut B until the spring controlled by it, which is the low-speed spring, seats the valve lightly. See that the high-speed spring, at the top of this valve, is free and does not come in contact with the nut on top of the auxiliary air valve stem. Start the motor and turn the nut B up or down until the motor idles properly, or runs regularly without load. This is the low-speed adjustment.

After obtaining the low-speed adjustment, advance the spark plug and open the throttle. If the motor back-fires through the carbureter, turn nut C up until the back-firing ceases; if the mixture is too rich turn it down. This is the high-speed adjustment. An overrich mixture is indicated when the exhaust has a strong pungent odor, while the motor is in operation and running regularly, without misfiring. If one smells of the exhaust of a motor while the motor is misfiring, the odor will be pungent even though the mixture is correct; therefore, in using this method of determining the condition of the mixture, one must be sure that the motor is firing regularly.

The spring controlled by the nut C always should have at least 1/32 inch clear-

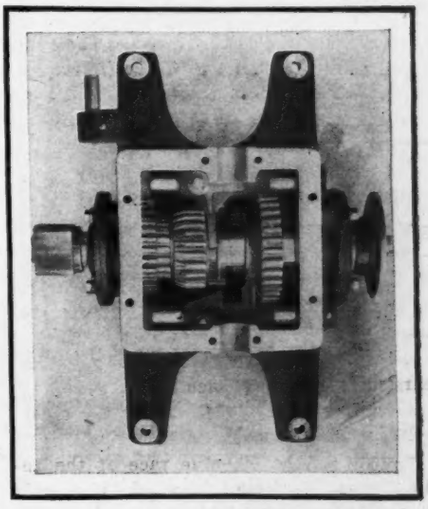


FIG. 2—GEARSET OF 1912 BUICK

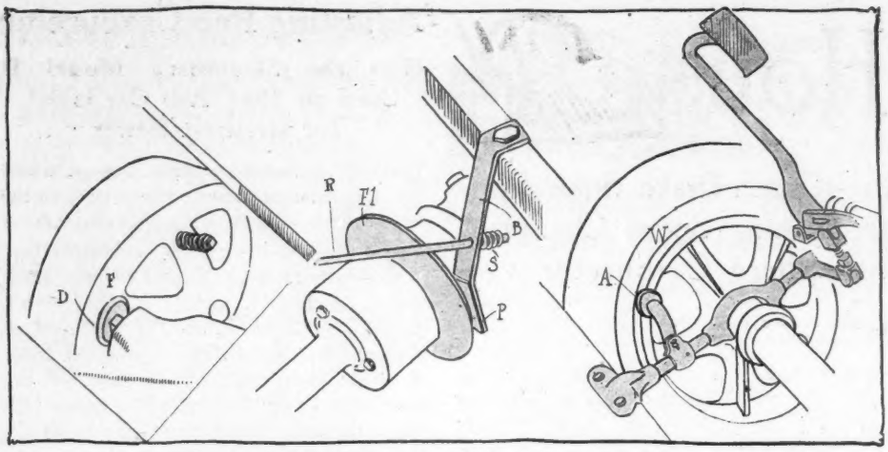


FIG. 3—THREE ARRANGEMENTS FOR STOPPING SPINNING CLUTCHES

ance between it and the nut on the top of the auxiliary air valve stem, when the motor is at rest. To start the motor when cold, close the valve in the hot-air horn D. This puts a high vacuum on the carbureter and enriches the mixture to facilitate starting. If the motor does not start on about the second turn with this valve closed, open it and crank the motor again; this is to admit the air perhaps necessary for combustion and should start the motor. Great care should be taken to see that this valve is opened instantly after the motor starts, and is kept open.

IGNITION ON FORD SIX

Enid, Okla.—Editor Motor Age—Will Motor Age describe the wiring of a magneto connection with the batteries on the 1907 model six-cylinder Ford? There are two coils, one is a vibrating coil and the other is a non-vibrating coil. There is no name on the magneto. Also describe how the Ford uses a vibrating coil on both AC magneto and also on batteries, as is done on the four-cylinder Ford cars. —J. F. Johnson.

This car used a Holley low-tension magneto with a non-vibrating coil as one source of current, while the other was batteries and vibrating coil. The model T Ford used a low-tension magneto which supplies current which corresponds to the current from the battery except that it is alternating instead of direct. The vibrating coils work as well on alternating current as on direct current. They merely produce a more rapid change in the primary current than is obtained by the magneto.

BUICK GEARSET ILLUSTRATED

Mahen, Miss.—Editor Motor Age—What kind of a transmission has the 1912 Buick? Would like a diagrammatic illustration with an explanation of it.

2—What ignition system is used?

3—Has the 1912 model over-head valves? —B. R. Bennett.

1—Selective sliding gear with three forward speeds. It is illustrated in Fig. 2.

A selective gearset is one in which the change from one speed to any other may be made without having to pass through the intermediate speeds. With a selective gearset a driver may shift from first to third without having to slide the second speed gears into mesh; or he may change from second to reverse without having to pass through first, etc. Most gearsets are of the selective type. In the progressive type of gearset it is necessary to engage the intermediate speed gears in mesh to pass from a lower to a higher speed or vice versa. Both are sliding gears, that is the gears are arranged to slide in and out of mesh with each other to bring about the different speed combinations.

In Fig. 4 selective type of sliding gearset is illustrated, and a study of the various speed combinations will reveal the operation of the mechanism.

2—Ignition is a dual system with Splitdorf magneto and dry cells.

3—Yes.

USE OF ROAD VULCANIZERS

Newark, Ill.—Editor Motor Age—Please advise me as to the benefits of road vulcanizers for tubes; and is there any danger of spoiling the tubes? I have reference to the vulcanizer that is cup form and burns gasoline.—A Subscriber.

By the use of a road vulcanizer a permanent repair is made at once. This is particularly valuable as patches cannot be relied upon in hot weather. There is danger of spoiling the tubes with any vulcanizer unless the operator watches carefully to prevent overcuring.

REGAL CARBURETER

Avoca, Wis.—Editor Motor Age—What make and model of carbureter is used on 1910 Regal 30?

2—Explain the proper adjusting of the carbureter?

3—Would it be of any advantage to equip the 1910 Regal 30 with a Schebler L carbureter?—R. H. Hampton.

1—Model D Schebler.

2—This was explained with illustrations in the Readers' Clearing House, Motor Age, May 16, page 31.

3—Yes. The old model D can be turned in at any Regal agency as part payment on a new model L.

Service and the User

Incident Illustrative of Relation Between Factory Repairs and the Car Sales

DETROIT, Mich.—Editor Motor Age—I am not a motorist. In fact, my information on the subject is practically all gained from advertisements. Hence, I am not even well informed on the technical things of the business. There is one outstanding characteristic of motor car advertising, however. That is the ever present cry of service.

The other night, while riding down town on the street car, I could not help hearing the conversation of two men who occupied the seat in back of mine. They were discussing motors, and as each apparently was the owner of a car, they were talking from experience gained in actual personal use of motor cars.

Said one: "The X is a good car. It has a good engine and the car's well built, too—good and substantial. The only reason I got rid of mine was that I couldn't get any service from those people. They seem to think that when they've sold a car their responsibility is ended. I sold the car last year and got myself a Y. It cost more than the X and I'm not sure it's any better, but now I'm sure that I can get service whenever I need it."

I wondered just what he meant by "service." I had my answer when the other man spoke.

"Why that's just the trouble with me," said he. "That's exactly the reason I'd like to get rid of my car. I can't get service. Now, just as an example: The other day I noticed that there was something wrong with the brake. I took the car down to the X service station. They looked it over and said that the trouble could be remedied and the car returned to me that same day. The cost would be about $5.

"Well, it was a week before I got the car back. Then, I got a bill for $20, too. Oh, yes, I made a kick. They came down $15. They said as long as I'd been promised the $5 rate, it would go at that figure. But still —— you know, that isn't service."

"No," said the other "you just bet it isn't. Now, you take my Y," and he launched forth on a glowing testimonial of the car he owned and the "service" he received. The chances are that now another man is considering the purchase of a Y.

The funny part of it all was that in that very street car there was an advertising card for the X. In big red letters was the statement: "Our Service Station is at Your Disposal."

To paraphrase Madame Roland we can well say: "Oh, Service! Service! What Frauds are Perpetrated in Thy Name!"—Milton M. Alexander.

Proper Braking Surface

Safe Area Depends Upon Weight of the Car, Diameter of Drum and Kind of Lining

LANSING, Mich.—Editor Motor Age—Please favor me with the following information: How much braking surface should be allowed a car?

2—What is the formula for determining the distance and number of seconds for stopping a car, giving several coefficients of friction?—R. H. J.

1—A car should be allowed sufficient braking surface to stop it within the shortest distance consistent with the safety of the occupants. In average American motor car practice, the braking surface is from 125 to 135 square inches per brake; that is, the brakes measure on the average 2½ inches in width by 16 to 18 inches in diameter. For both brakes this would be a total of from 500 to 540 square inches, considering service brakes and emergency brakes. This is for the large touring car weighing in the neighborhood of 4,500 pounds when loaded. The light runabout has about 300 square inches of braking surface, drums running from 12 to 14 inches in diameter.

2—There is no formula which will give a satisfactory determination of these quantities, since the condition of the road surface, the force with which the brakes are applied and the weight of the car enter into the consideration. The energy which must be absorbed when stopping a car on the level from full speed is expressed by the formula:

$$E = \frac{MV^2}{2}$$

In which E is the kinetic energy, M is the mass—weight divided by 32.2—and V is the velocity of the vehicle in feet per second.

The result thus obtained is in foot-pounds.

The other formula is:

$$f = \frac{MV}{F}$$

In which:

f is the time required to bring the car to a stop.

M is the mass.

V is the velocity in feet per second.

F is the decelerative force applied by the driver to the brakes.

Recent brake tests conducted by the aldermanic committee of the city of New York have a bearing on this consideration. A full report of these tests will be found on page 18 of Motor Age of May 23, 1912. The figures obtained at these tests are reproduced below:

Speed of car, miles per hour	Speed of car, feet per second	Distance required to stop	Tread
15	22.0	14 ft. 10 in.	Non-skid
20	29.3	25 ft. 1 in.	Non-skid
25	36.7	33 ft. 4 in.	Non-skid
30 first trial	44.0	54 ft. 8 in.	Non-skid
30 second trial	44.0	48 ft. 8 in.	Smooth

Average macadam road surface
Overall length of car, 16 feet 3 inches
Weight of car fully loaded, 4,450 pounds
Brake diameter, 17 inches
Brake width, 2½ inches

BEVEL TIMING GEARS

Thibodaux, La.—Editor Motor Age—Would it be possible to change the shape of gears in the front part of my model 17 Buick to bevel-shaped gears?

2—Could Motor Age suggest anything that would correct the rattling notice of the gears?

3—If bevel gears can be used, please give instructions and measurements for making the change; also give me the address of firms that are able to furnish the gears.—Phil. J. Naquin.

1—Yes; but care must be used. The best way is to take the car to the Buick branch at New Orleans.

2—New gears are needed, probably.

3—See answer to question 1.

LOOKING FOR LEAKS

Sauk Center, Minn.—Editor Motor Age—This is the way I test my engine for leaks around the plugs and priming cups, and find it pays to go over them often, as the heat and continual pound of the pistons certainly will cause them to leak, and then there are irregular firing, missing cylinders, unbalanced motor and a lot of trouble which is hard to locate.

First flush out each cylinder with about a pint of kerosene oil, first shutting off the gasoline from tank; then drain the crankcase to get the kerosene out of it. Now cut out the ignition, and be mighty careful you cut it out, for when you are pressing down on the starting crank you may find a 30-40 horsepower kick which will most likely injure your arm if not break it. Close up tightly all priming cups, and on cylinder No. 1; take an oil can filled with kerosene and flood the plug from top to bottom, being sure to get enough oil in and around the base of the plug so that any escaping air will cause a bubble to appear when you turn the engine over its compression. Be sure you put the kerosene around the priming cup also, for these leak a trifle at times where they are seated, and any leak, however small, will cause trouble in the proper running of the motor. After you use the oil, take the starting crank and press it slowly downwards at the same time watching carefully the cylinder and priming cup for any air bubbles which may appear. Repeat until all cylinders are tested, being careful not to skip any one of them by looking at the wrong one under compression. It is more certain to open all relief or compression cocks except the one you are testing, closing them as you progress with the work. If a bubble appears between the shell of the plug and porcelain or mica it is evidence that the plug needs tightening or a new gasket fitted. If the bubble appears at the seat of the plug it is evidence that the plug is not properly seated and needs to be taken out and a good coat of flake graphite mixed with cylinder oil, to the consistency of putty, placed all over the threads of the plug. Then screw it carefully into its seat, not too tightly, as this would cause it to crack its porcelain and cause it to stick at times. If you have no new gaskets on hand you can make as many as you please by taking a piece of asbestos and a pair of shears and cut out a round ring to fit over the porcelain and then screw the packing nut tightly home. If you test for these slight leaks you will be surprised at finding them when you least expected to do so.—A. D. Carpenter.

ILLINOIS' ROAD FUND

Virginia, Ill.—Editor Motor Age—While the discussion is going on in regard to the disposition of the motor road fund, I would like to express my opinion. I have noticed that some one suggested it be used to build hard roads between large cities. What I want to know is, what good will that do us who live 60 or 80 miles from such road? For instance, the county in which I live pays in the neighborhood of $1,000 a year for motor car and chauffeur's licenses. Are we to continue for years to come paying this amount, and perhaps more, and receive no benefits? It doesn't look fair to me. I notice the suggestion in the article in regard to dividing the fund among the different townships of the state, that such distribution would leave only a small amount for each township, which is all true but a little is better than none. I think it should be returned to the county pro rata according to the amount each county pays towards such fund. This would go a long way towards having the roads repaired, dragged and put in good condition, and everybody would get at least some benefit therefrom. —G. W. Rexroat.

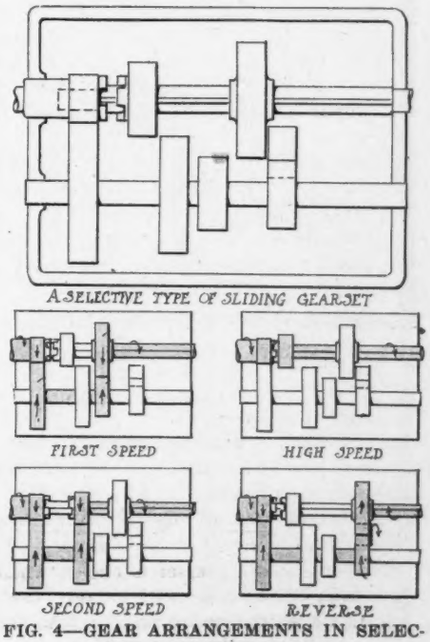


FIG. 4—GEAR ARRANGEMENTS IN SELECTIVE SLIDING GEARSET

Packard Six-Cylinder for 1913 Season

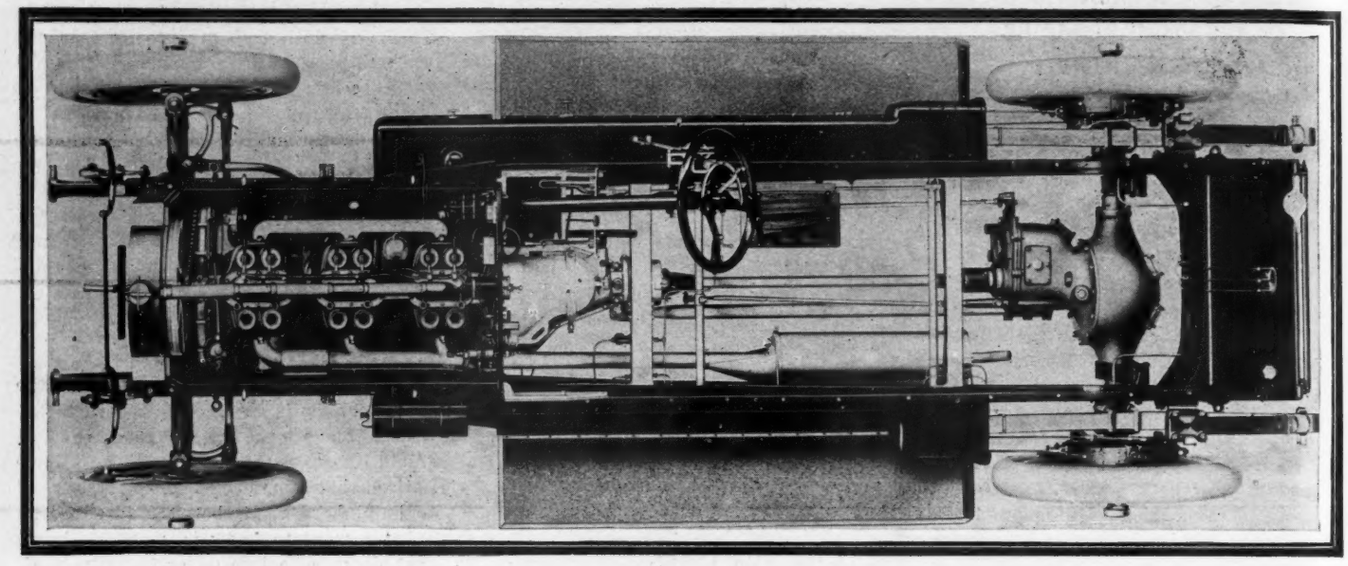


FIG. 1—PLAN VIEW OF 1913 SIX-CYLINDER CHASSIS MADE BY PACKARD MOTOR CAR CO.

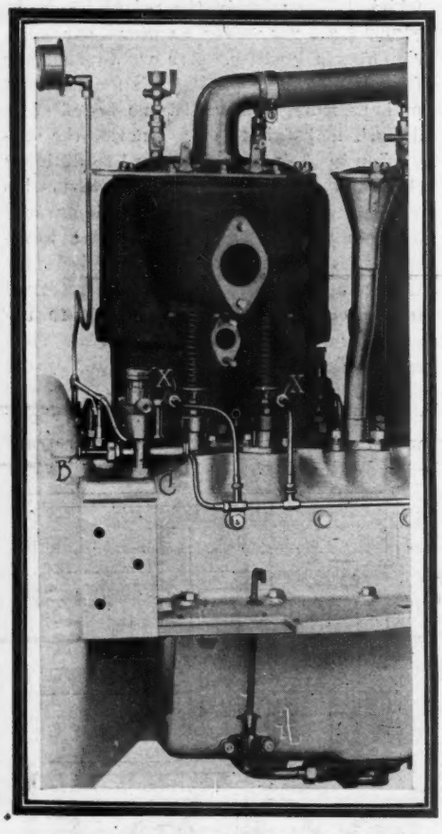


FIG. 2—SHOWING PACKARD OILING SCHEME

While Retaining Concern's Recognized Features, New Model Incorporates Several Improvements, Including Electric Lighting and Improvement in Lubricating System

THE Packard six-cylinder, 48-horsepower model for 1913 continues the recognized Packard features and design as used this year and incorporates several improvements which are the result of the logical evolution of design. The six-cylinder type of motor 4.5 by 5.5-inch cylinders with twin castings and opposite valves is continued; the three-speed gearset formed as a unit with the rear axle is continued; supporting the motor on a three-point suspension, a trunnion in front and a pair of integral crankcase arms at the rear is continued; the flywheel with dry-plate clutch is, as at present, inclosed in a rear extension of the crankcase; the use of gears for driving camshafts and magneto and pump shafts is continued; and the characteristic tubular front axle remains as a distinguishing feature of this car. The company also is considering bringing out a small six-cylinder, but no announcement has been made as yet.

Changes in Packard

Looking at the improvements that have been made, an evolutionary one is the adoption of electric lighting, for which purpose a generator (Fig. 4) is located on the exhaust side of the motor at the front. It is gear-driven, an extension of its shaft driving the magneto. The entire lighting system is electric, including electric head lights and combination oil and electric dash and tail lamps. In addition to these there is a dash gauge lamp for the ammeter, gasoline and oil gauges and also a small glow light above the license tag which as heretofore is located on the right rear fender. The generator is not only accessible but readily removable in that a set screw at the top of the metal strap securing it may be loosened and the dynamo removed without disturbing the base, which is rigidly bolted to the crankcase.

Another feature of the lighting system is that the tail light is wired in series with the gauge lamp on the dash so that if the tail lamp goes out the dash lamp is extinguished also, thus a ready indicator is furnished the driver. Using a glow-worm light in connection with the tail lamp makes it possible to use one of the rear lights as a signal when stopping or reversing.

One of the most important motor changes is a three-fold improvement in the lubricating system and the interconnection of the lubricating system with the throttle so that when more gas is fed to the motor for extra power or speed more oil is also furnished. Figs. 2 and 4 illustrate the auxiliary oiling scheme. It consists of a series of external oil leads which feed into the cylinder walls on the intake side. These oil leads are brought into use by the throttle when it is one-third open or wider. These oil leads are connected with the main lubricating system through a check valve C, Fig. 2, and its interconnection through the throttle is through the bottom B. At X is shown the entrance of the two auxiliary oil leads to their respective cylinders and also the main distributing oil pipe from which the leads to the cylinders branch.

New Lubricating System

The second and third improvements in the oiling system are internal, they cannot be seen from the outside. One consists in the direct lubrication of the piston pins by forcing the oil from the lower connecting rod bearings to the upper connection rod bearings, or piston pin bearings as they are frequently designated. At present, that is in the 1912 models, the piston pins are lubricated from the splash which collects on the cylinder walls and reaches the piston pin bearings through a recess in the piston

wall. Now this is changed and the more positive scheme adopted. The aim for 1913 is to keep the splash out of the cylinder and to do this a baffle plate fills the lower end of each cylinder, there being a slot in the baffle through which the connecting rod reciprocates. Now practically all of the oil reaches the cylinder wall by being pumped up the connecting rod and overflowing out through the piston pin against the cylinders. This method should be positive and give oil where needed without any danger of too much and consequent smoking or carbonization. With this improvement the oil is forced by the pump to all of the crankshaft bearings, to the six lower connecting rod bearings, to the six piston pin bearings and also to the forward camshaft bearings, the magneto shaft bearing and the water pump shaft bearing.

Circulating Non-Splash Oiling

The Packard company claims by its auxiliary system and also the improvements added to have increased the lubricating system five-fold with a smaller consumption of oil. Those not familiar with the standard oiling system should remember that it is a circulating non-splash type; the base of the crankcase has an oil reservoir in conjunction with which is an oil pump that delivers to the parts already mentioned. In the crankcase proper there is not a splash or oil well into which the lower ends of the connecting rods dip, rather a positive forcing of lubricant to the parts needing it. Fig. 3 shows the location of the filler tube, positioned between the middle and rear cylinder castings on the right, but one being used instead of two this year.

Fig. 3 shows a slight rearrangement of motor parts in that the water pump with its hydraulic governor operating on the carbureter throttle is located further to the rear, thereby leaving the intake valves of the first two cylinders very accessible. The small vertical lever by which the crankcase oil drain cock is controlled is also placed further to the rear and in an accessible position. This illustration shows the copyrighted design of intake manifold which the company has recently been granted a design patent on by the patent office.

The left side of the motor, Fig. 4, shows a few improvements or changes over the 1912. Because of locating the lighting dynamo at the left front the magneto is carried to the rear a proportional distance, but mounting both on the crankcase web leaves the complete set of six exhaust valves entirely exposed and accessible. An improvement in the exhaust manifold is that where it couples with the pipe to the muffler a stuffing box is now used, this freeing the manifold from any strains that might be set up due to frame twisting or warping when traveling over rough roads. In 1912 a flange coupling was used.

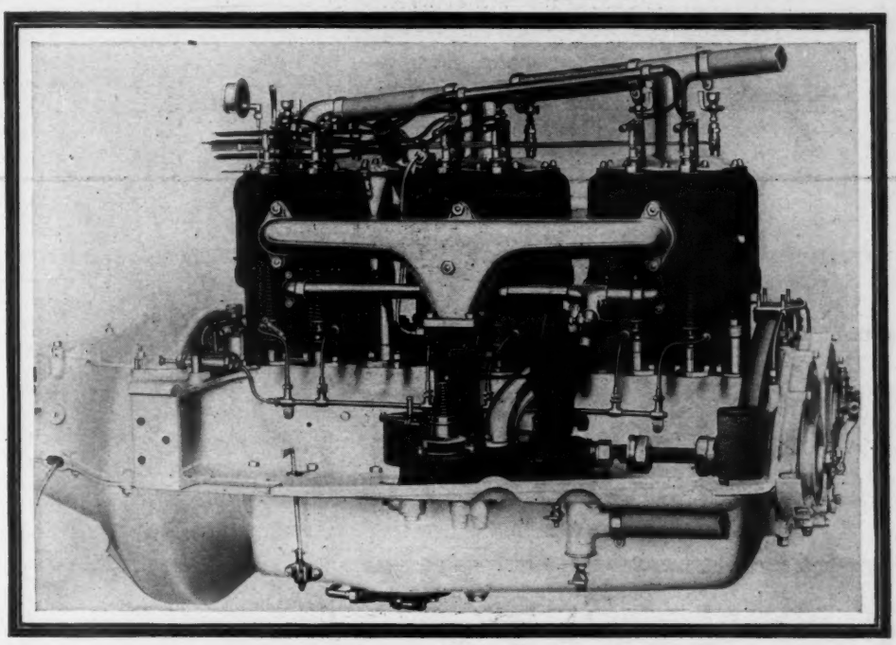


FIG. 3—EXHAUST SIDE OF 1913 PACKARD SIX MOTOR

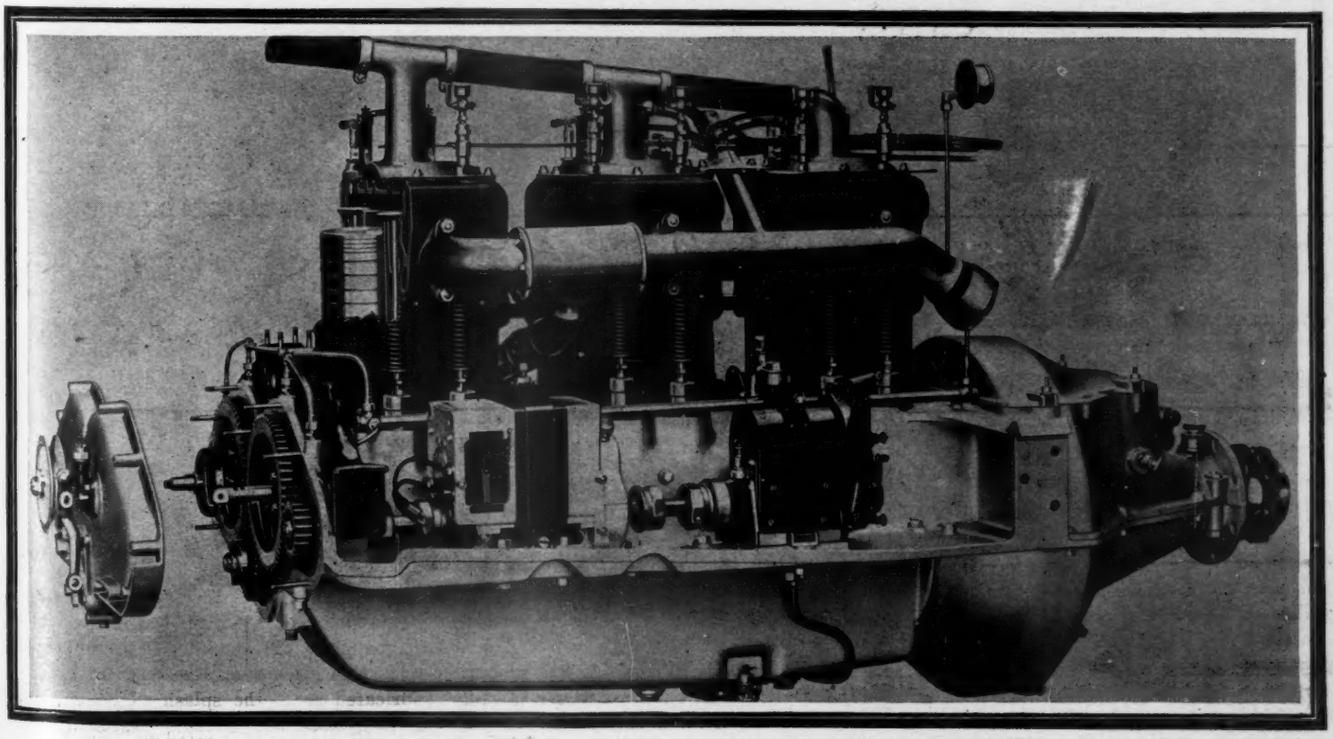
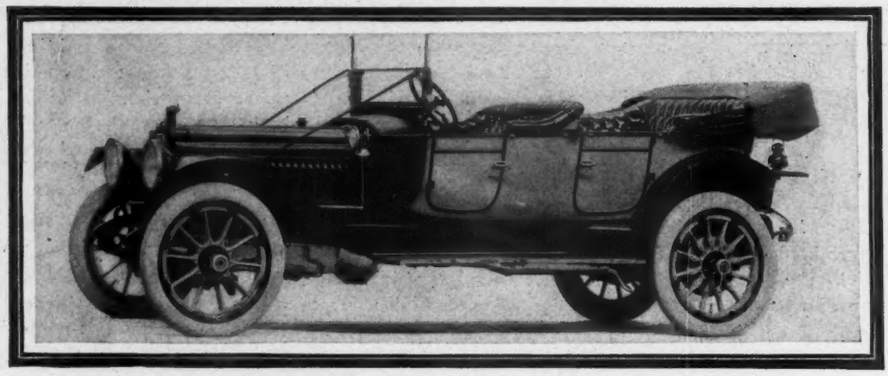
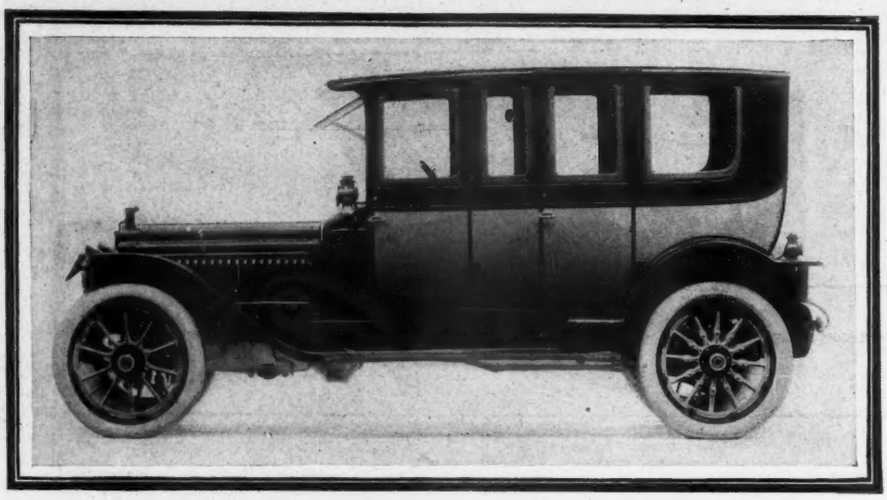


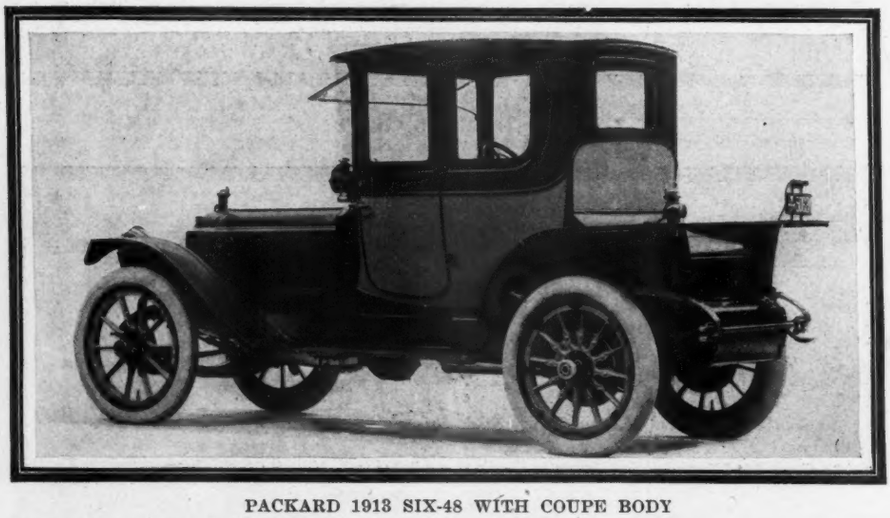
FIG. 4—INLET SIDE OF THE PACKARD SIX-48 MOTOR FOR 1913



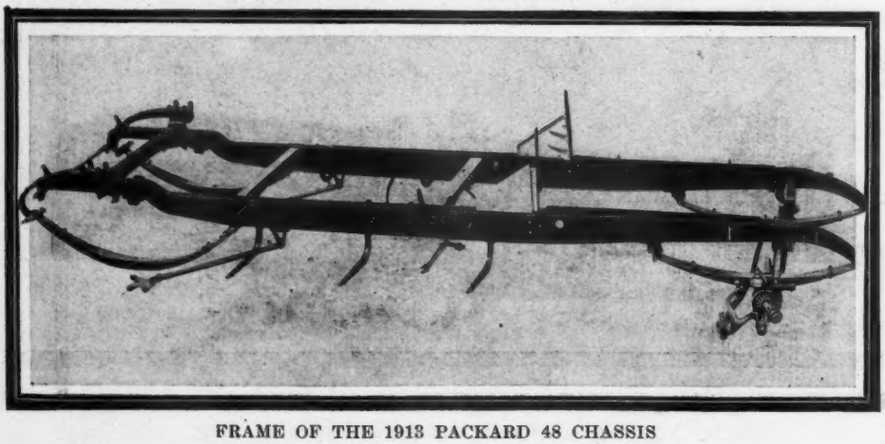
PACKARD 1913 SIX-48 WITH PHAETON BODY



PACKARD 1913 SIX-48 WITH BROUGHAM BODY



PACKARD 1913 SIX-48 WITH COUPE BODY



FRAME OF THE 1913 PACKARD 48 CHASSIS

There are some other motor improvements, one of which is the fitting of an acetylene priming or self-starting device. Another is that the hose connections in the return water pipe system are clamped to the T pipes which are formed integrally with the waterjacket covers.

Pressure Fuel Feed for 1913

A change which has but little bearing on the motor improvements and which is more directly connected with the body refinements is the adoption of pressure feed on the gasoline system which supercedes the gravity used up to and including 1912. The gasoline tank is now located beneath the chassis frame at the rear, the side members of the frame having been extended, Fig. 8, to accommodate this tank. Instead of the short upward arch on the side members of the frame above the axle there is now a gradual rise, the construction being the same as that known as the dropped frame. Air pressure on the gasoline tank is secured from an air pump, Fig. 3, on the rear end of the motor and driven from the intake camshaft. Beneath the front floor boards is an automatic pressure relief for maintaining a standard air pressure in the system. This device also retains any oil or water which might collect due to condensation. A small set screw on the right side of the gasoline tank permits of draining off small quantities of gasoline. This plays another role in that it may be used to drain water collecting in the bottom of the tank if the rear wheel on the left side is jacked up or if the car is driven to the right side of an arched road.

In glancing at the general view of the chassis, Fig. 1, several minor changes will be noted. A conspicuous one is the adoption of three-fourths elliptic rear springs which take the place of semi-elliptics used up to the present. As Fig. 8 shows, these springs are shackled to the frame at their forward ends and at their rear the upper quarter spring is relatively short and stoutly anchored to a frame plate. Semi-

Mex can Rubber Situation

TORREON, Mexico, June 15—An improvement in the guayule rubber manufacturing situation in this region is noted since the restoration of freight service on the railroads leading into this city. For a time the six rubber factories in Torreon and the adjacent town of Gomez Palacio were hard pressed for a supply of the guayule shrub with which to keep running. The Intercontinental Rubber Co. was forced to haul the shrub in carts from its Cedros ranch to the railroad station of Viesca, in the state of Coahuila, instead of shipping direct from Camacho, a nearby station. Owing to the scarcity of labor upon many of the ranches, the work of cutting the shrub has been interfered with, but it is stated there is enough stock on hand to keep the factories running for some time, and with the prospective improvement of conditions generally the production will soon assume its normal volume.

elliptics are continued in front. The chassis has been improved in appearance by taking the battery box off the running board and supporting it on the frame at a point directly beneath the driver's seat. The tool box, which was also on the running board, is now located under the driver's seat on the left side. This gives a remarkably clear arrangement.

A rear axle improvement which may be noted in Fig. 12 is that the rear radius rod bracket is made into a plate held to the rear axle by the spring clips and it incorporates the lower rear shock absorber bearing pin. The three-speed gearset, so long associated with Packard construction, is continued.

Packard Bodies

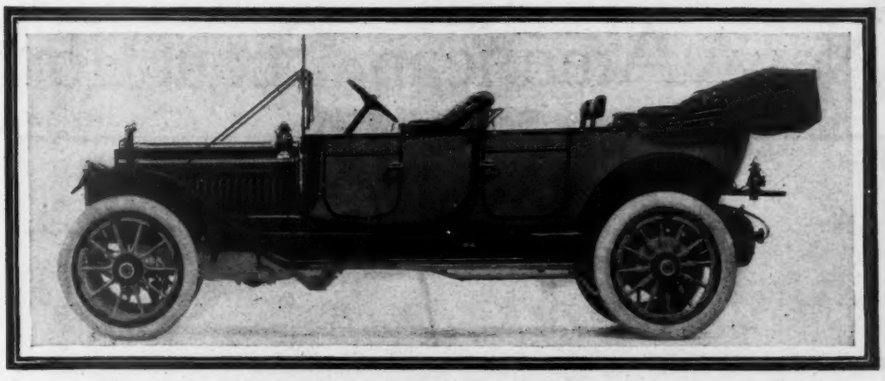
The line of bodies for next year is much the same as that of the present season, incorporating runabouts, touring cars, coupes, phaetons, limousines, imperial limousines, broughams and landaulets. The touring cars, phaetons and limousines are mounted on the same chassis with a wheelbase of 139 inches. The runabout and coupe use a 121.5-inch wheelbase. The wheelbase on the brougham and landaulet measures 139 inches. On all models the same tire sizes are used, namely, 36 by 4.5 inches in front and 37 by 5 inches rear.

Packard bodies for next year are built along much the same lines as at present excepting that in the open cars a more sweeping curve is used at the back, this resembling the lines of the limousines and provides a more roomy seat. Thicker and softer upholstery is used. The body length on the touring car has been increased 6 inches, distributed by giving 1 inch to the front passenger compartment, 3 inches in the tonneau compartment between the folding seat and the rear seat and 2 inches in the under body. The body width forward of the rear seat is now 7 inches wider on the touring car and 5 inches on the phaetons.

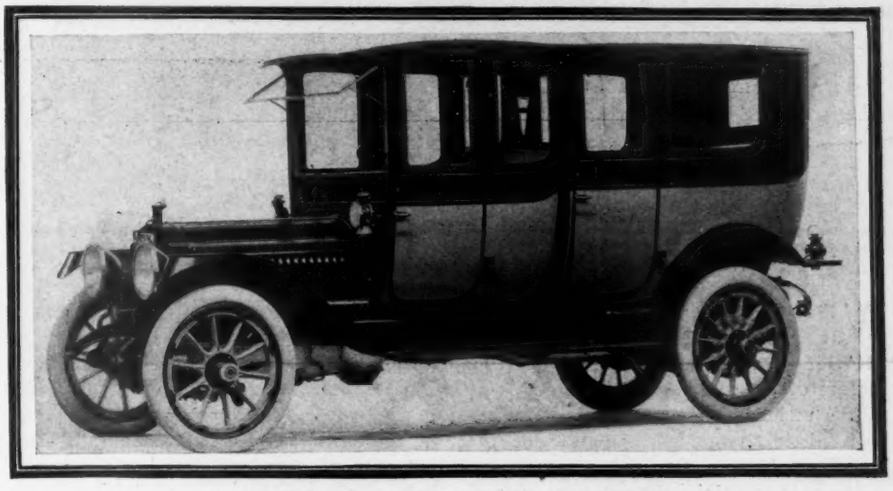
Marmon Building Sixes

INDIANAPOLIS, Ind., June 17—Announcement that a line of six-cylinder cars will be added to its four-cylinder line for the 1913 season, has been made by the Nordyke & Marmon Co. of this city. The company has been working on a six-cylinder car for 2 years, beginning with the construction of the Marmon Wasp, which won the Wheeler & Schebler trophy in a 200-mile race in 1910 and the 1911 500-mile.

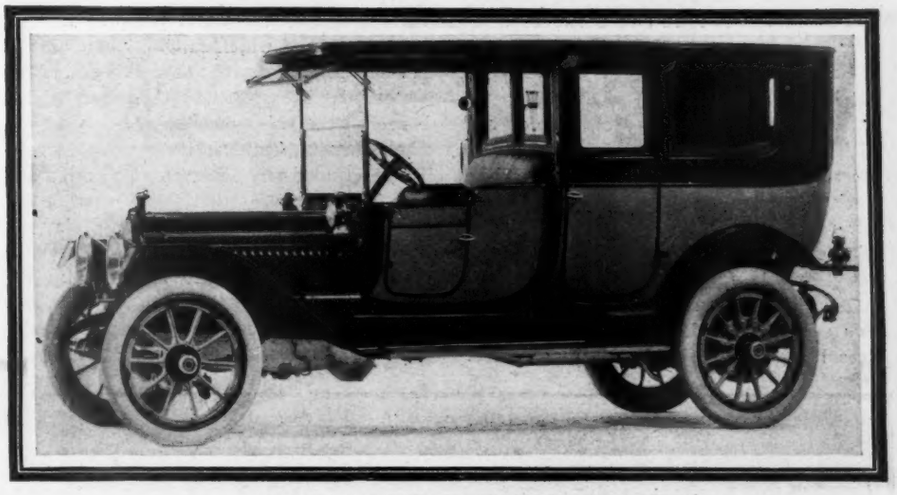
The new line is to be made in four models, for two, four, five and seven passengers. The wheelbase will be 145 inches. A special feature will be a new front axle, in which the vertical spindle is placed in the direct center line of the wheel, insuring ease and safety in steering and permitting the car to turn in a 40-foot street. There will also be a new brake feature, consisting of two expanding shoes, with a combination metal and asbestos fabric facing, which press against steel drums in each rear wheel.



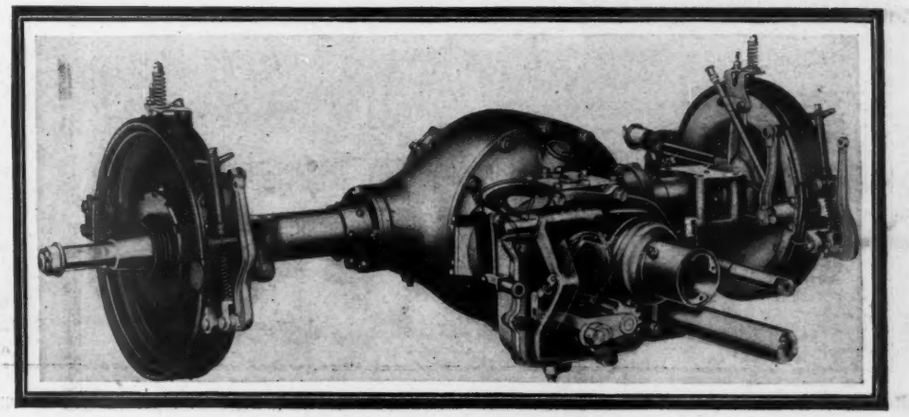
PACKARD 1913 SIX-48 AS A TOURING CAR



PACKARD 1913 SIX-48 IMPERIAL LIMOUSINE



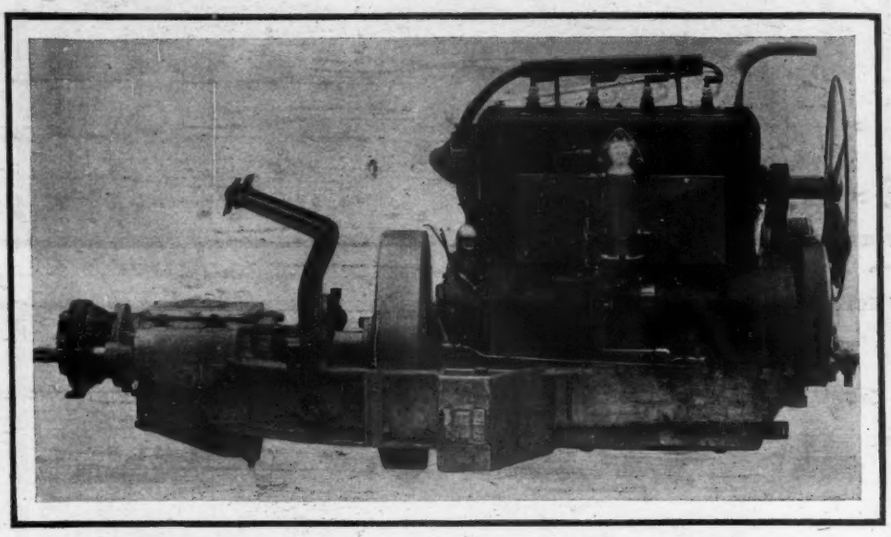
PACKARD 1913 SIX-48 WITH LIMOUSINE BODY



REAR AXLE ASSEMBLY OF 1913 SIX-48 PACKARD

New American Scout for 1913 Season

Model 22-A Has Monoblock Motor with Three Crankshaft Bearings—Unit Power Plant



UNIT POWER PLANT OF AMERICAN SCOUT FROM THE INTAKE SIDE

WITH the appearance of the American Scout for 1913, known as the model 22-A, it is seen that the distinguishing feature of American cars is retained, that is, the underslung construction which has been distinctive of the product of the American Motors Co. for many years.

The new model is distinct from any of the previous chassis made by this company and is intermediate in size between the 20 and 30 of last year. Like that of the 20, the motor is of comparatively small bore, but has a much longer stroke. Unlike the 20, with its cylinders cast in pairs and with both intake and exhaust valves on the same side, the new Scout motor is a block casting with intake valves on one side and exhaust valves on the other. In this respect it resembles the 30 motor of last year. In fact, throughout the entire chassis, the design and construction follows out that of the 30, the chief differences being in its slightly decreased size. of the car. The motor of the unit power plant is of the four-cylinder, T-head type, of 3¾ inches bore by 5 inches stroke, giving it a rather unusual stroke-bore ratio of 1.33 to 1. The block cylinder casting of the motor is somewhat unique in that not only all four cylinders but the upper half of the crankcase as well is an integral casting. This policy is carried still further in that the water pump as well as the water inlet which supplies the cylinder is cast integrally with the crankcase. The water inlet is enclosed by the covers which house all the valve mechanism.

Three-Bearing Crankshaft

The crankshaft, contrary to usual practice in motor construction, is carried on the lower half of the crankcase. This was done to give greater rigidity to it and to make it more accessible for adjustment. The lower half of the crankcase bolted firmly to the main frame; the upper half is so arranged that by loosening a few bolts it may be swung on a hinge, leaving a large opening along the entire length of the crankcase to allow for the inspection of the inside parts. The crankshaft has three bearings, unusual with the monoblock type of casting. These are all die-cast and are unusually large in area.

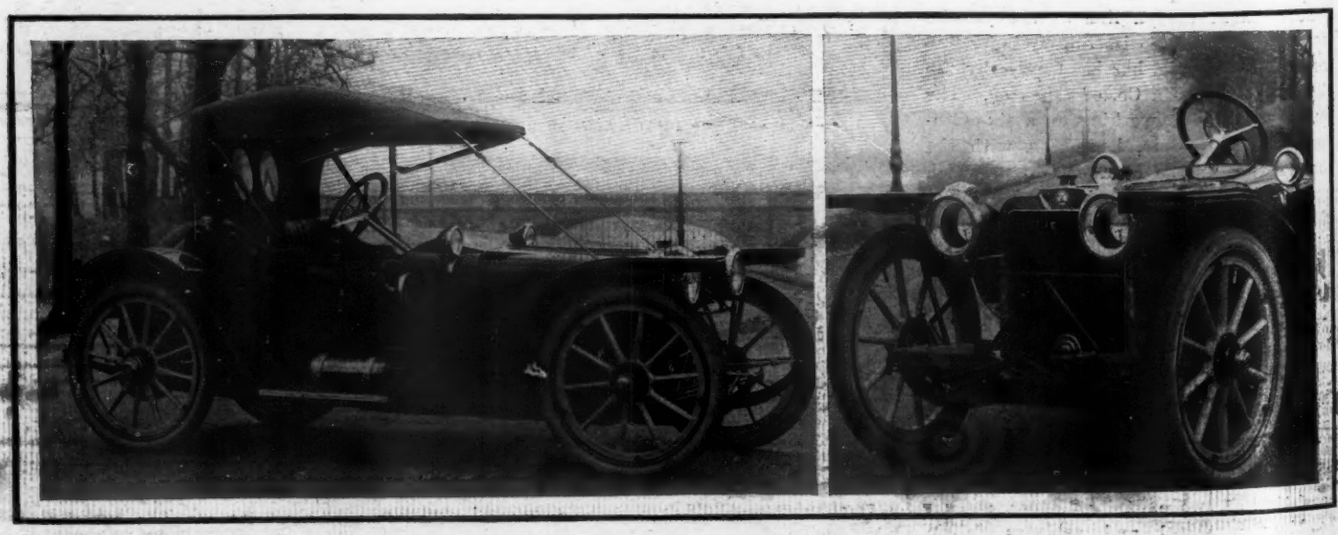
The integral casting of the cylinders with the upper half of the crankcase permits their removal without disturbing the magneto, water pump, or any of the other attachments to the motor as these are all carried on the upper half of the crankcase.

The valves are 2 inches in diameter with a 45-degree seat and a ⅜-inch lift. The radiator is of the cellular type.

Lubrication System

The oiling system in this motor consists of a series of troughs leading from one compartment to another, the splash being constantly carried toward the front end of the motor and returning to the rear compartment by a single duct. The only oil in mechanical circulation is that which is supplied from a fresh oil supply or reservoir in leg of the lower half of the crankcase, to the oil in service for replenishing. The oil pump operates at one-fiftieth of crankshaft speed and is of the plunger type and adjustable. There is a sight feed on the leg of the motor. Integral casting of the intake manifold permit it to be water jacketed. The motor equipment consists of a 1-inch Rayfield carbureter with Eiseman magneto and storage battery as the dual ignition system.

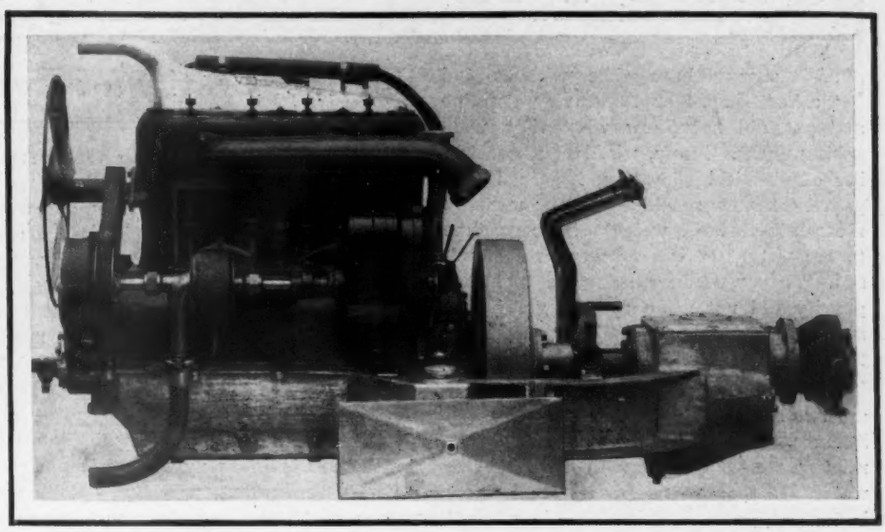
The clutch is of the conventional cone



SIDE AND FRONT VIEWS OF THE AMERICAN SCOUT ROADSTER FOR 1913. THE FRONT VIEW SHOWS THE UNDERSLUNG FRAME

Underslung Roadster Has Unusual Motor

Integral Casting of Cylinders, Crankcase, Manifolds and Water Pump—Some of the Features



EXHAUST SIDE OF AMERICAN SCOUT MOTOR, SHOWING UNIT POWER PLANT

type, the engaging spring being so arranged as to permit the removal of the clutch without disturbing the spring so that when it becomes necessary to remove clutch members the assembling is easy.

The gearset is of the three-speed selective type. The gearset housing has two legs which go entirely around the clutch and bolt to the rear end of the motor, making a unit power plant. These arms which attach the gearset housing to the motor base encircle the clutch and take the place of the clutch housing, but allow of much greater accessibility than is obtainable with a clutch completely housed. At the rear end of the housing is bolted the ball and socket in which the ball at the head of the torsion tube is located. The ball in turn incloses a universal joint in the propeller shaft.

The Rear System

The floating rear axle is a one-piece pressed steel housing in the make-up of which 30-35 carbon heat-treated steel is used. The bevel gear and pinion are mounted on the gear carrier to which is attached the torsion tube. The bearings throughout the rear axle are imported annular bearings. The gears used in the rear axle are of 6 pitch. The front axle is a drop forgings of I-beam section of 30-35 carbon. Elliott type steering knuckles of 25 carbon chrome nickel steel are employed. The front wheels, like the rear axle, are mounted on imported annular bearings.

Two internal expanding brakes are mounted on each rear wheel. The drum for the service is 14 inches in diameter and that for the emergency brake is 10 inches in diameter. The drum band width is 2 inches. Each brake is an expanding shoe lined with thermoid. Each shoe is made in halves held together only by coil springs. Between the ends of the halves at one side are two cams which are rotated when the brake is applied, thereby expanding the shoes. Between the opposite ends of the halves are similar cams for adjustment only. These cams can be set at any angle, separating the brake halves more or less as desired. The rear axle is of the floating type with jaw clutch in the hub, and the brake drums are bolted onto the spokes of the wheels, as shown in one of the illustrations.

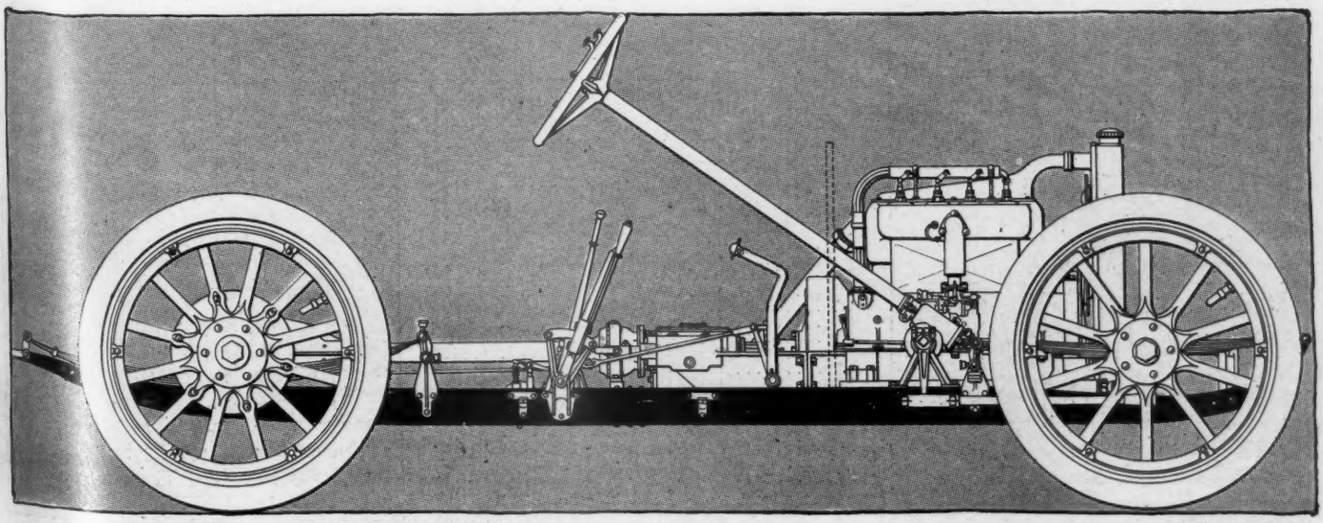
Underslung Suspension

Both front and rear springs are semi-elliptic, the front ones being 30 inches in length and the rear ones 47 inches in length. The underslung method of suspension is illustrated in the side view of the chassis and shows how the frame of the car is carried under the axles. The steering gear is of the worm and gear type and is adjustable, with the controls inside of the steering wheel working on a sector above the wheel.

The car has a wheelbase of 105 inches, with tires 36 by 3½ inches in size.

Only Roadster Body Fitted

A single two-passenger roadster body is fitted. This is built up of an ash frame covered with sheet metal, upholstered in hand-buffed leather. One of the illustrations shows the arrangement of the gasoline tank, which is carried at the rear end of the body and is oval shape. The main supply of gasoline is 20 gallons and the auxiliary supply is 6 gallons. Provisions are made for carrying tires at the rear end of the car, the tire support being a luggage box.



SIDE VIEW OF THE CHASSIS OF THE 1913 AMERICAN MODEL 22-A, ILLUSTRATING THE UNDERSLUNG SUSPENSION

The Mathematics of Motoring

CAR owners have time without end asked for 70 or 76 gravity gasoline and yet did not know what they were asking about. Many, who had a smattering of chemical education, imagined that gravity meant specific gravity, meaning the relation of the weight of the gasoline to the weight of water taken as a standard. They were horrified when told that gravity did not mean specific gravity at all, but in fact meant directly opposite to specific gravity.

Gravity simply means weight. There are two scales in common use, specific and Beaume. These scales simply tell us the relative weight of a liquid compared with water. In the specific gravity scale water is taken as a standard at 1. Any liquid which weighs more than water will be expressed by 1, plus additional decimals, thus: 1.5260 is the weight of chloroform, which is about 52 per cent heavier than water.

All liquid products of petroleum are lighter than water; some of them approach more nearly the weight of water than others. They will all be expressed in decimals that indicate their weight is less than 1, thus: .8764 means that the liquid is 8764/10000 the weight of water. Consequently, the higher the numerals or the more nearly it approaches 1, the heavier is the liquid, and vice versa. Now bear in mind this refers only to the specific gravity scale.

Specific Gravity of Fuel

The Beaume scale is entirely different, and this is the scale that is used exclusively in this country commercially, because it is more convenient. In the Beaume scale decimals are not used. Water is taken at an arbitrary point on this scale, being 10. A liquid weighing less than water is expressed by figures higher than 10.

There is a general misunderstanding in the minds of many motorists and repairmen throughout the country as to the means of testing the quality of gasoline by means of a hydrometer, and as to the difference between a hydrometer reading directly in specific gravity and one equipped with a Beaume scale. A hydrometer is a glass instrument consisting of a glass tube loaded at the bottom with mercury or fine lead shot, and with a bulb blown near the weighted end. It has a graduated stem and when allowed to float in the liquid to be tested, the specific gravity is indicated by the distance to which it sinks in it, or by the graduation, which is on a level with the surface of the liquid.

In Fig. 1 two gasoline hydrometers are shown floating in water, one having a Beaume scale and the other having a scale reading direct in specific gravity. On the Beaume scale the graduation 10 registers with the surface of the water, and on the specific gravity scale the instrument registers 1.00, which is as it should be, distilled water at 60 degrees Fahrenheit being taken as unity. Sixty degrees Fahrenheit, the normal temperature, is understood when temperatures are not specified in connection with readings. Measured on the Beaume scale, it will be seen that higher specific gravities are denoted by lower numbers and lower specific gravities by higher numbers.

In Fig. 2 the same hydrometers shown in Fig. 1 are again illustrated floating in gasoline. The gasoline usually sold to the motorists has a specific gravity of about .72 which is equivalent to from 62 to 64 degrees Beaume. The difference in the readings of the two hydrometers is very clearly shown in this illustration, as is the opposite direction in which the stems are graduated. The lower the specific gravity readings of gasoline, the more volatile it is and the more readily can an engine be started with it; and the same is true for the higher readings on the Beaume scale.

Specific gravity is the ratio of the weight of a body to the weight of an equal volume of some other body taken as the standard or unit. This standard is usually water for solids and liquids, and air for gases.

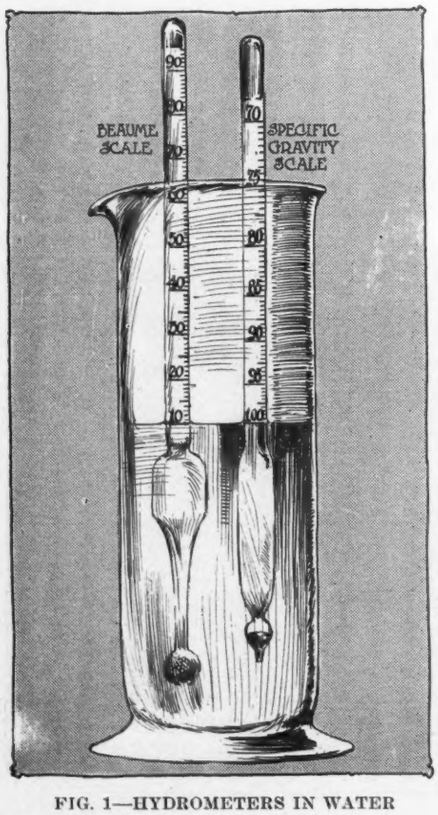


FIG. 1—HYDROMETERS IN WATER

Table showing specific gravities indicated by Beaume hydrometer readings for liquids lighter than water, temperature 60 degrees Fahrenheit.

Beaume	Specific Gravity	Beaume	Specific Gravity
10	1.0000	51	0.7734
11	0.9929	52	0.7692
12	0.9859	53	0.7650
13	0.9790	54	0.7608
14	0.9722	55	0.7567
15	0.9655	56	0.7526
16	0.9589	57	0.7486
17	0.9523	58	0.7446
18	0.9459	59	0.7407
19	0.9395	60	0.7368
20	0.9333	61	0.7329
21	0.9271	62	0.7290
22	0.9210	63	0.7253
23	0.9150	64	0.7216
24	0.9090	65	0.7179
25	0.9032	66	0.7142
26	0.8974	67	0.7106
27	0.8917	68	0.7070
28	0.8860	69	0.7035
29	0.8805	70	0.7000
30	0.8750	71	0.6965
31	0.8695	72	0.6930
32	0.8641	73	0.6896
33	0.8588	74	0.6863
34	0.8536	75	0.6829
35	0.8484	76	0.6796
36	0.8433	77	0.6763
37	0.8383	78	0.6730
38	0.8333	79	0.6698
39	0.8284	80	0.6666
40	0.8235	81	0.6635
41	0.8187	82	0.6604
42	0.8139	83	0.6573
43	0.8092	84	0.6542
44	0.8045	85	0.6511
45	0.8000	86	0.6481
46	0.7954	87	0.6451
47	0.7909	88	0.6422
48	0.7865	89	0.6392
49	0.7821	90	0.6363

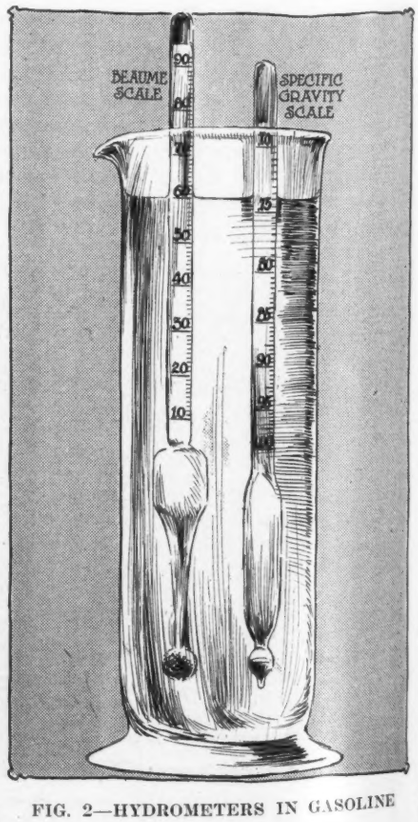


FIG. 2—HYDROMETERS IN GASOLINE

The Motor Car Repair Shop

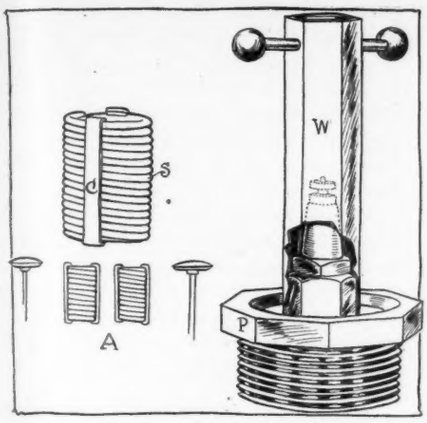


FIG. 2—HANDY VALVE-SPRING CLIP

Recent 500-Mile Race at Indianapolis Furnishes Hints for Repairman

DURING the 500-mile race at Indianapolis a few weeks ago in inspection of the pits in which supplies and spare parts for the racing cars were kept, many hints to the repairman were obtainable. Here the need of system and order were of the utmost importance. A glance at the illustration, Fig. 1, which shows how the parts and tools were arranged in one of these pits, will give a fair idea of the order which prevailed in most of them. The tire tools, for instance, which included jacks, braces with bits attached for loosening the demountable rims, and the little spring clamps or locking devices, all these articles were kept near the one end of the pit opposite which the rear wheels of the car would stop. These were on the ledge which separated the pits from the track, and they were placed opposite the rear end of the car because the most work was done on the rear tires. Attention is called to the method of keeping all tools of a similar nature together.

A large space is left free in the central portion of the ledge so that the tires may be passed over the wall without sweeping off the tools; while on the wall at the other end of the pit, opposite the position generally occupied by the front end of a car when it stopped, were grease guns filled with grease or oil, wrenches of different sizes and types, spark plugs, and such equipment as might be required for work on the motor. On the ledge at the rear of the pit, other tools such as chisels, punches, hammers, and such articles as might be required less often, were placed in the same orderly fashion that prevailed throughout. All tools of a like nature were kept together, and as convenient to the workmen as possible.

In order to facilitate operations the spare valve-springs and valves were arranged on the ledge as at A, Fig. 2; the valve springs S being compressed and held in such condition by means of two or three little clips C made from sheet metal about ⅜ inch wide, about $\frac{1}{16}$ inch thick, and with their ends bent over at right angles for about ¼ inch. With the springs arranged in this way, after the faulty valve had been removed, there was no need for an unwieldly valve-spring lifter, for the workman had but to assemble the parts, then slip the clips off the springs and let them snap into place. The same clips could be used to advantage in any repairshop; and in removing valves as well as in replacing them. In removing the valves, the workman has but to lift or compress the spring by cranking the motor until the cam lifts it, then slip the clips into place; or if the cams will not compress the spring enough, the ordinary lifting tool may be employed, and then the clips applied.

Being Ready for Emergencies

The successful motor car repairman, or motorist as well, must always be ready for emergency repairs. This is a fact that not only is well known by the racing car repairman, but which is being impressed on all repairmen and many motorists. The increasing popularity of the amateur reliability run is doing much to impress this upon the motorist; and many are the advantages to be gained thereby. The man who equips his car for a reliability run goes to a lot of preliminary trouble to see that all parts of his car are thoroughly lubricated; he sees that spare casings and a generous supply of inner tubes are safely and carefully stowed away in the car; he does not go away without his tire tools, or any of the other tools that might be required; and when he starts away he generally is prepared for any reasonable emergency. One tour gives the motorist the experience and generally inoculates him with the germ that develops the desired habit. As an example of the extent to which the racing pit repairmen go in this respect, at the right in Fig. 2 is shown a spark plug screwed into a cylinder plug, with a socket wrench attached ready for replacement of the plugs in the cylinder of a motor. Experience has taught the repairmen that in removing a spark plug from the engine, it was so tight that the cylinder plugs or valve-cap came out with it.

Cleaning a Muffler

There are several ways in which a muffler may be cleaned out. It often happens that after a car has been running for a year or so the muffler may become clogged up with soot and dirt so that unless the cutout is left open there will be considerable back-pressure on the engine, which will give rise to a noticeable loss in power. There are several ways in which a muffler may be cleansed of these accumulations. A temporary method, popular with some drivers, is to race the motor for a few seconds with the cutout open, then switch off the ignition, close the cutout, and before the motor comes to a stop, switch on the ignition again. This allows a number of charges of unburnt gas to accumulate in the exhaust pipe and muffler which when ignited by the following ignited charge explodes in the muffler and forces out or loosens up the carbon deposits therein. There are cases on record where mufflers have been broken by such explosions.

A more thorough and effective method is to remove the muffler from the car, disassemble it, put the plates or partitions in the flame of a brazing outfit or a forge, heat them to a red heat and the carbon deposits will drop off, or at least they will come off very readily if after having allowed the plates to cool slowly in air, they are struck sharply a few times and washed in gasoline.

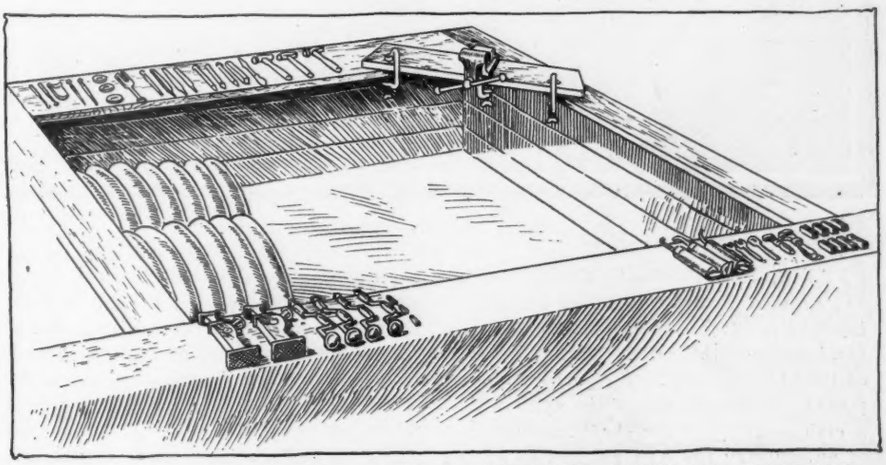
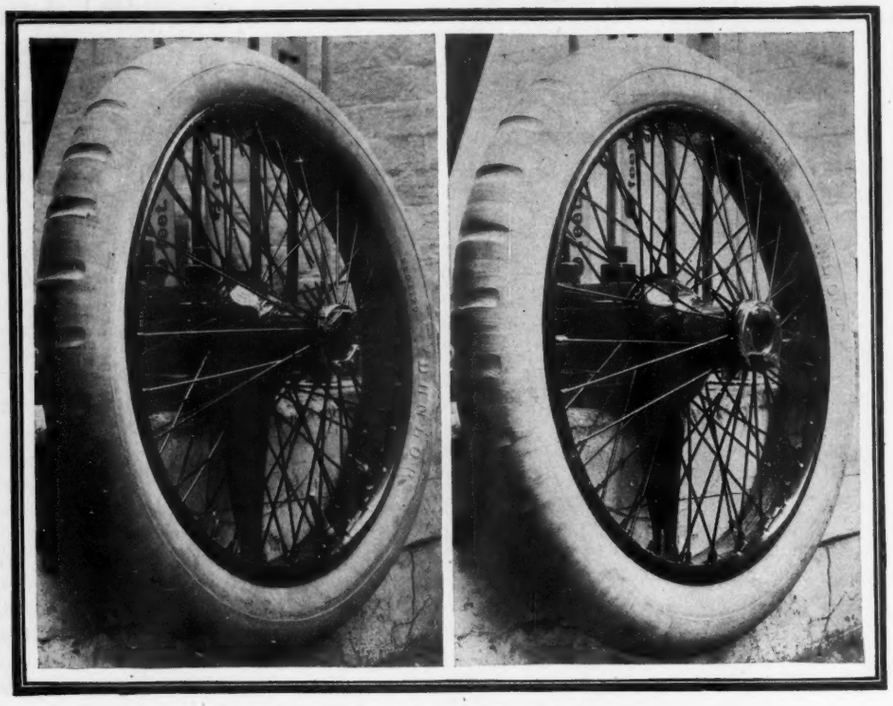
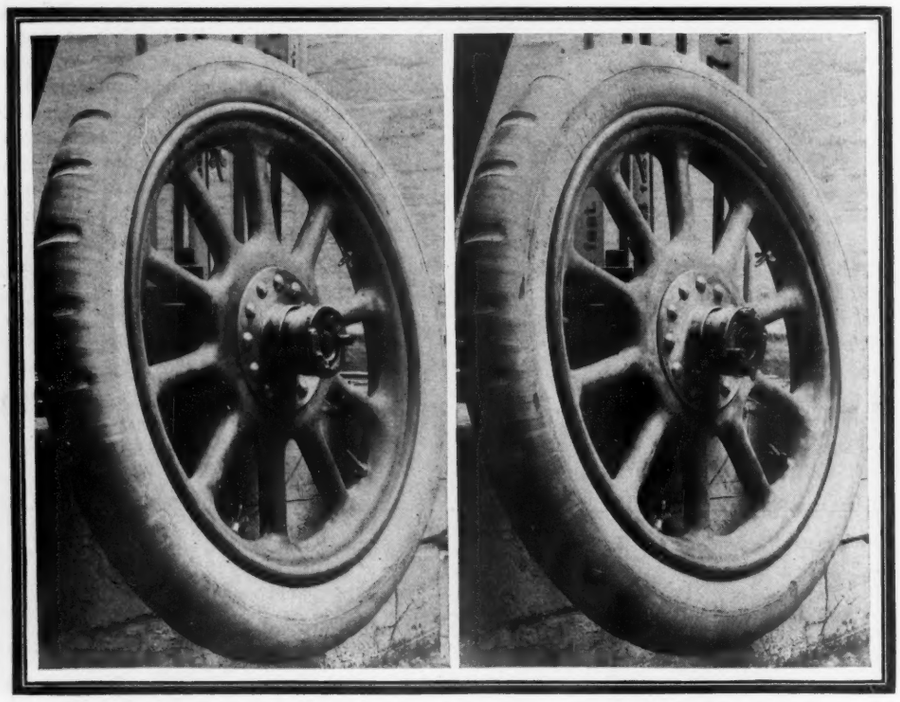


FIG. 1—PIT AT SPEEDWAY RACE, SHOWING HOW SPARE PARTS ARE CARED FOR

Want Show Profits Spent on Motoring



WIRE WHEELS USED IN ENGLISH TEST



STEEL WHEELS TRIED OUT BY BRITISH

PARIS, June 3—Should the Automobile Club of France apply the $180,000 it has received from the Paris motor shows to the benefit of the entire industry, or is it entitled to use this sum for purely club purposes? Reformists are of the opinion that a club established for the encouragement of an industry has no right to live at the expense of that industry.

It cannot be denied that whatever the influence of the Automobile Club of France on the development of motoring and the motor industry, it has secured considerable financial gain by reason of its connection with the Paris motor shows. When the club first decided, in 1898, that a motor show in Paris would benefit the budding industry, it was the only organization capable of undertaking this work. The experiment resulted in a net profit of $9,030, and this and the three following shows brought in a profit of practically $50,000, all of which was secured by the club. For the 7 following years the profits had to be shared with the manufacturers, but as the movement grew in importance the profits increased and the club pocketed altogether from 1898 to 1908 the sum of $180,000. It has no longer any connection with the show and obviously does not receive any share in the profits. Critics, however, are asking what has become of the money thus obtained from the motor industry, and are unable to get any satisfactory reply.

According to the published accounts, the club spent $20,000 on an aviation grand prix in 1911 and will devote $10,000 to the same purpose this year; it is offering $6,000 in prizes for the grand prix at Dieppe in June, it has $50,000 in hand and is spending $60,000 on the improvement of the club house. Totaled, this brings the amount devoted to the encouragement of the industry to $36,000, for manufacturers fail to perceive the beneficial influence that a swimming bath, a boxing ring and a shooting range can have on their business.

The claim is made therefore that the club, having received $180,000 from the shows, and having spent only $36,000 of that amount in useful purposes, owes the sum of $144,000 to the motor industry in general. It is not suggested that the money should be returned to individual members of the industry, but it is claimed that all the money should be expended on useful demonstrations, competitions and prizes likely to benefit motoring.

Criticism is not being withheld at the small amount offered by the club in prizes for the grand prix, the most important road race in Europe this year. The first prize is the sum of $4,000, with in addition a cash prize of $2,000 for the best team performance. Compared with the $60,000 being spent this year on the fitting up of a club physical culture department, the amount is doubtless insignificant. Obviously the club has all the risk of organization in connection with the big race, but it is probable that the income will be sufficient to cover the estimated expenditure of $80,000. Although entry fees are very much lower than usual, the sum of $17,000 will be obtained from this source and the rental of tire and gasoline stations; the town of Dieppe contributes $20,000 towards the organization of the race, and if attendance is as high as expected, the receipts from the grand stands and official garage will be sufficient to cover the deficit. Thus the most important motor car race in Europe and the only one organized by the Automobile Club of France, will have cost the promoters $6,000.

Wheels Given Impact Pendulum Test

COVENTRY, Eng., June 7—It is a little over 4 years since it was suggested that the impact pendulum was the fairest methods of testing the relative virtues of different kinds of road wheels for vehicles. The static test, that is, a steady pull attached to the wheels, had previously been used, but it did not meet with the demands of the cities. The general impression at that date was, that the wire wheel while it would stand a steady strain would collapse with a shock. To meet this new demand the Rudge-Whitworth Co. of this city has installed the necessary apparatus for a pendulum test, and found it an admirable and rapid means of testing improvements in wire wheels.

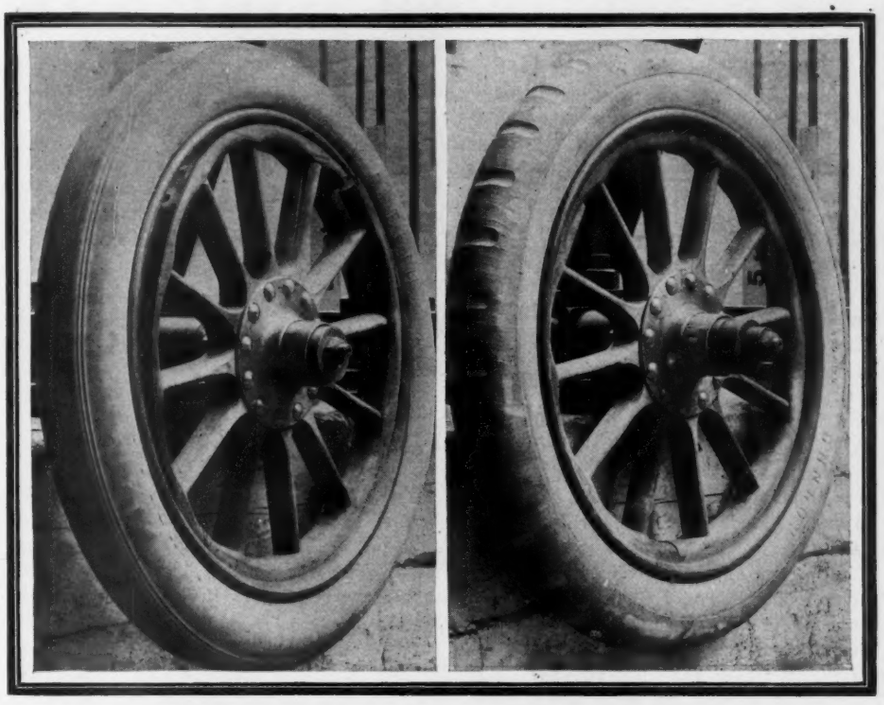
When the American Society of Automobile Engineers visited the Rudge-Whitworth factories in November, 1911, the wire wheel and English oak artillery wheel were tested, and some of the American visitors expressed the opinion that oak was an unsuitable timber for this purpose, and that hickory would give a better result.

It therefore was thought necessary to obtain the best possible examples of hickory wheels, one set from the United States and the other from France. There was every reason to believe that at least the American hickory wheels were the best of their kind as they were specially ordered, and the purpose explained to the maker. At the same time two sheet steel artillery wheels were tested and two Rudge-Whitworth detachable triple-spoked wheels. The wheels to be tested were held on a rigid steel bar bolted to a concrete bed and a pendulum, the bob of which weighed 480 pounds, was pulled back a series of varying distances and allowed to swing and strike the wheel, in the same direction as the wheel strikes the curb. Owing to the difference in weight of the different wheels a direct comparison is impossible, but a fair comparison can be made by multiplying the weight of the wheel by the amount of the deflection, since it is obvious that the minimum deflection and the minimum weight are equally desirable, or putting it the other way, the increase in weight of the wheel would naturally mean a decrease in the deflection, it being remembered that the lower the figure the greater the merit of the wheel.

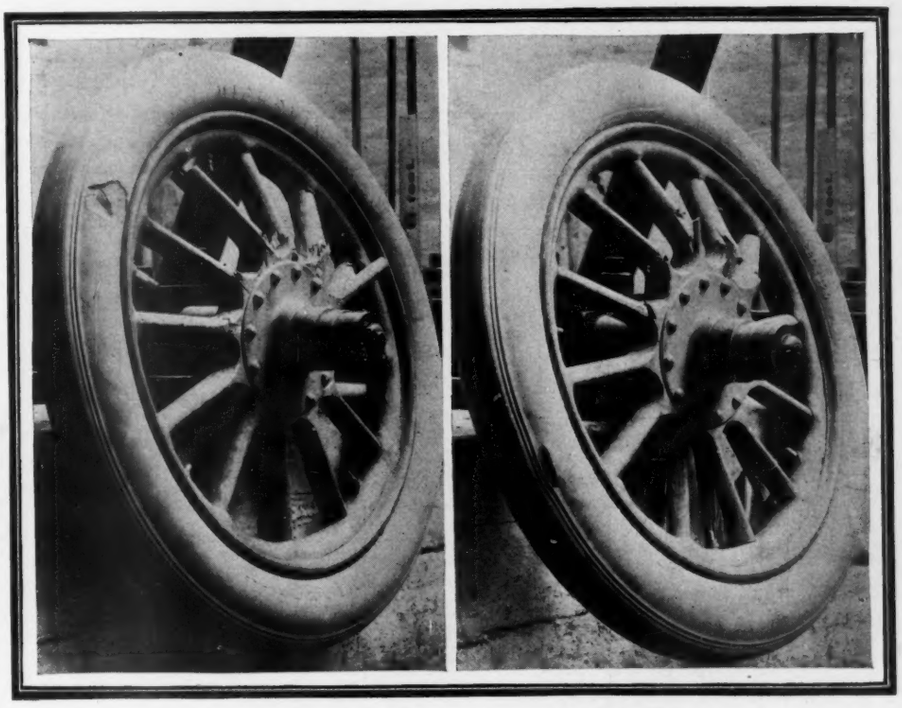
In the test of the four wheels the French wheel came out worst. The results of the tests are given herewith. The pendulum swing varied from 5 feet in the first blow to 7 feet in the fifth. Table I shows that the sheet metal wheel had a rim deflection after the first blow of .53 inches; after the second of 1.05 inch; and after the fifth of 2.79 inches. With the French oak four spokes cracked on the first blow, two more on the third, seven on the fourth and nine on the fifth. The American hickory wheel stood up better. One cracked on the first pendulum stroke, two on the second, three on the third, four on the fourth and six on the fifth.

The Rudge-Whitworth triple-spoke wire wheel was tested. No evil result followed the first penudulum stroke. After the second there was slight trace of the hub shell buckling, after the fourth blow a few spokes loosened, and after the fifth blow five spokes were loose and the hub shell buckle slightly increased. The rim deflections for each of the four wheels are given in table I.

The tabulation was compiled by taking the best results secured by each type of wheel, there being two of each tested. The results of the sheet steel wheels were



AMERICAN HICKORY WHEELS AFTER ENGLISH TEST



FRENCH WHEELS USED IN ENGLISH TEST

very favorable. The respective weights of the four types of wheels were: Rudge-Whitworth triple-spoke wire wheel 30 pounds; sheet steel wheel, 37 pounds; French oak, 39.5 pounds; American hickory, 47 pounds.

It should be mentioned that the American hickory No. 2 gave a better result because one of the flanges with which it was clamped broke. This allowed it to go through considerable angle without the spokes actually bending.

American hickory wheel No. 2 also may have obtained a slight advantage in the early stages because the rim was not fixed very securely to the felloe, and at the first blow started moving.

The examination of the illustrations will show the state of the wheels and they speak even more eloquently for the wire wheel than do the figures given below.

A different and what is believed to be more accurate correction for weight gives the results indicated in table II. The correction is based on the following considerations:

The energy of the blow is measured in feet and pounds and it is fair to assume that a wheel twice as heavy would stand twice the energy and show the same deflection, in which case the wheels would be of equal merit. An exact comparison could be made by dividing the energy of the blow by the weight of the wheel and setting it against the resulting deflection. It is on this basis that table II has been compiled.

Manufacturers' Communications

EDITORIAL TEACHES A LESSON

ROME, N. Y.—Editor Motor Age—The editorial in Motor Age of June 6 dealing with the results, or rather the lessons to be learned from the failure of some of the contesting cars in the recent 500-mile race at Indianapolis seems to me to cover some of the most vital defects in motor car construction of today, especially that part dealing with lubrication. The unusual strains and high temperatures generated during such a severe test demand the very best lubrication system possible to devise and it seems to me that the higher the pressure that could be carried on the lubricating oil the better it would be for all concerned.

The average car carries very little, the best of them but a pound or so, which any sane calculation would show to be insufficient. The Rolls-Royce, an English car, of which there are two in our city, carries from zero to 20 pounds of pressure, the pressure rising as the engine speed is increased, yet no smoke is ever seen coming from the exhaust, neither do the plugs soot or cause any trouble because of carbon. If such results can be accomplished by our cousins across the sea, why not here? It is certainly a fact that if a film of oil can be carried on the bearing surfaces at a pressure of 20 pounds to the square inch, without any ill effects in the way of exhaust smoke or sooted plugs, the bearings will stand a far greater working pressure and speed than if the lubricating oil was forced in under but a few ounces or a pound or so pressure as in the latter case it could be more easily forced from between the surfaces.

Another point I see Motor Age has taken up is the great speed obtained from small cylinders. The Mercer, for instance, showed remarkable speed for its engine size, and all credit is due the designer, the same in the National case, as these two cars are exemplifications of the most modern practice in engineering. The reasons in each case can be summed up in large valves, high lift, large manifolds and carbureters, double ignition and the usual amount of skill in the workmanship and material used, combined, of course, with staunch construction in the remainder of the car without undue weight.

It is by locating defects that cause failures in a race like the 500-mile that real benefit is derived by the men who make the cars and the only suggestion I would like to see carried out in the future is the one to make the future 500-mile races for stock cars only, so that the buying public can judge more accurately the merits of each car. The special-car race is all right in some ways, but the public does not get the good out of it directly, as with stock cars.—P. J. Dasey, secretary Stevens Mfg. Co.

TABLE I—HOW WOOD AND WIRE WHEELS STOOD BLOWS OF HEAVY PENDULUM

R-W. WIRE WHEEL		AMERICAN HICKORY		FRENCH OAK		SHEET STEEL WHEEL					
Pendulum blow	Remarks	Swing of pendulum	Remarks	Approximate energy of blow (foot—pounds)	Remarks	Cumulative energy of blow	Remarks	Rim deflection	Rim deflection	Rim deflection	Rim deflection
.36	.....	.28	One spoke cracked.	.25	Four spokes cracked	.53	.....	1	Ft. In. 5 0	500	500
.60	Slight trace of hub shell buckling, evidence given by enamel splintering round shouldered portion.	.46	Two spokes slightly cracked at base.	.41	.....	1.05	Slight buckling round upper edge of back centre-plate.	2	5 6	615	1115
.90	As above; no apparent increase.	.67	Three spokes cracked, also metal hub-plate (outside) fractured.	.64	Two spokes completed broken, and three cracked.	1.60	Buckling action slightly increased; spokes very slightly bent, yield being around hub plate.	3	6 0	730	1845
1.16	A few spokes loosened.	.89	Four spokes cracked; no further fracture of plate, but two of the holding-down bolt heads cracked.	1.07	Seven spokes broken.	2.17	Same as above; slightly more acute.	4	6 6	850	2695
1.49	Five spokes loose; hub-shell buckle only slightly increased.	1.17	As above; but six spokes cracked instead of four (two only slight).	4.60	Nine spokes broken, and wood felloe badly split.	2.79	Same result; final position showing about 3-32nd inch space between holding-plate and wheel at upper end.	5	7 0	990	3685

TABLE II—TABULATED RESULTS OF ENGLISH PENDULUM IMPACT TESTS ON WHEELS

DESCRIPTION.	Energy of Blow (E) and Total Deflection (D). 1st blow. E.	D.	2nd blow. E.	D.	3rd blow. E.	D.	4th blow. E.	D.	5th blow E.	D.	Corrected for Weight E/W equals Energy of Blow Divided by Weight of Wheel. 1st blow. E/W.	D.	2nd blow. E/W.	D.	3rd blow. E/W.	D.	4th blow. E/W.	D.	5th blow. E/W.	D.
Rudge Wire Wheel—Rim 19.35 lbs., hub 5.35 lbs., spokes 5.30 lbs.; total, 30 lbs. 23/5/12	530	.31	636	.55	753	.82	879	1.18	1015	2.56	17.66	.31	21.20	.55	25.10	.82	29.30	1.18	33.83	2.56
Rudge Wire Wheel—Hub 4.85 lbs, spokes 5.40 lbs., rims 19 lbs.; total, 29.25 lbs. 23/5/12	530	.36	636	.60	753	.90	879	1.16	1015	1.49	18.11	.36	21.74	.60	25.74	.90	30.05	1.16	34.70	1.49
Rudge Wire Wheel, 880x120, weighing 31 lbs. 14/11/11	515	.16	620	.35	735	.58	860	1.12	.....		16.6	.16	20.0	.35	23.7	.58	27.75	1.12	.....	
Sheet Steel Wheel—Rim, spokes, etc., 30¼ lbs., hub 7½ lbs.; total, 37¾ lbs. (without tire). 23/5/12	528	.53	630	1.05	740	1.60	859	2.17	987	2.79	13.98	.53	16.68	1.05	19.60	1.60	22.75	2.17	26.14	2.79
Sheet Steel Wheel—Hub, etc., 7 lbs., rim, spokes (1 piece), 29½ lbs.; total, 36½ lbs. (without tire). 23/5/12	528	.59	629	1.06	740	1.60	859	2.14	987	2.80	14.46	.59	17.23	1.06	20.27	1.60	23.53	2.14	27.04	2.80
American Hickory Wheel—Hub 13.50 lbs., spokes 7.30 lbs., felloe 5.20 lbs., rim 21 lbs.; total weight (without tire), 47 lbs.; total weight of wood parts only, 12½ lbs. 23/5/12	528	.21	636	.32	757	.84	878	1.41	1006	2.20	11.23	.21	13.53	.32	16.10	.84	18.68	1.41	21.40	2.20
American Hickory Wheel—Hub 13 lbs., spokes 7 lbs., felloe 5 lbs., rim 21½ lbs.; total, 46½ lbs; total weight of wood parts only, 12 lbs. 23/5/12	530	.28	633	.46	756	.67	883	.89	1022	1.17	11.39	.28	13.61	.46	16.25	.67	18.98	.89	21.97	1.17
French Hickory Wheel—Hub 12.6 lbs., spokes 7 lbs., felloe 4.75 lbs., rim 15.15 lbs.; total weight, 39.50 lbs.; total weight of wood parts only, 11.75 lbs. 23/5/12	530	.25	637	.41	757	.64	885	1.07	1017	4.60	13.41	.25	16.12	.41	19.16	.64	22.40	1.07	25.74	4.60
French Hickory Wheel—Hub 12.40 lbs., spokes 7 lbs., felloe 5 lbs., rim 14.10 lbs.; total, 38½ lbs.; total weight of wood parts only, 12 lbs. 23/5/12	528	.27	635	.45	753	.84	878	4.88	.....		13.71	.27	16.49	.45	19.55	.84	22.80	4.88	.....	
French Hickory Wheel, weighing 34 lbs. 19/12/11	516	1.15	609	2.36	697	5.84	.....		.....		15.17	1.15	17.9	2.36	20.5	5.84	.....		.....	
Oak Wheel, tested before American engineers—Hub, etc., 10.25 lbs., felloe 5.50 lbs., rim 16.25 lbs., spokes 6 lbs.; total, 38 lbs.; total weight of wood parts only, 11.50 lbs. 14/11/11	518	.26	623	.58	736	2.88	814	6.64	.....		13.63	.26	16.39	.58	19.36	2.88	21.42	6.64	.....	
Oak Wheel, weighing 35.25 lbs. 26/10/11.	520	.8	610	3.57	686	6.39	.....		.....		14.76	.8	17.3	3.57	19.48	6.39	.....		.....	

Kansas' Fuel Consumption

TOPEKA, Kan., June 15—Owing to the distribution of daily newspapers to the farmers, as a result of rural free delivery, and the demands of the motor car, the consumption of kerosene has been almost doubled and that of gasoline nearly trebled in the last 5 years in this state. These figures are the estimate of J. S. Longshore. The farmer now has his daily paper or papers, and his magazines of the best published, with which he spends the interim between supper and bedtime, and because of the worldwide interest which he may take in passing events this time has been lengthened several hours. With the free delivery system covering two-thirds of Kansas, whereas 5 years ago here and there a farmer was taking a daily paper, it is now only here and there a farmer who does not have from one to three dailies, and, in addition, weeklies and magazines.

To the motor car is due, of course, the greatest consumption of gasoline, but the gasoline engines on the farm also have come in for their share. An increase in 5 years in the one state of Kansas alone from 2,000 to 15,000 motor cars—and probably 3,000 more will be registered before the close of the year—has made a great demand upon the refineries. And this demand for gasoline has greatly increased the supply of kerosene, as two barrels of the latter are produced in making one barrel of the former. It is expected by the end of the year the consumption of gasoline will exceed that of kerosene by 10,000 barrels. The following interesting table gives the exact increase in figures for the fiscal years ending June 30:

	Kerosene Bbls.	Gasoline Bbls.
1906	198,105	136,116
1907	222,286	147,561
1908	220,110	161,605
1909	248,568	211,496
1910	272,437	240,645
1911	320,305	819,549

GOVERNMENT CROP REPORT

Washington, D. C., June 17—According to the crop report of the department of agriculture, there will be 226,000,000 bushels more small grain raised in 1912 than in 1911. The report covers specifically the estimated yields based upon the reported condition as of June 1 of the spring and winter wheat, oats and barley crops.

It is too early to learn anything about the corn and rye crops, but in the case of corn, it is known that the acreage will be larger than in 1911. It is estimated that a decrease in winter wheat, amounting to 67,000,000 bushels, will be shown at the end of the crop year. This is more than counterbalanced by the increase figured in the spring wheat yield, which is placed at 74,000,000 bushels. The condition of spring wheat on June 1 was 95.8 as compared with 94.6 in 1911 and 93.8 as a 10-year average.

The middle western section, including the winter wheat belt, is the only section of the country where decreases of material size are shown and those same states are always high in the list of corn producers. As the acreage of winter wheat is over 11 per cent less than in 1911, the chances are that the corn acreage will be proportionately larger.

Americans Gain Footing

WASHINGTON, D. C., June 15—It is estimated that 25,000 additional motor cars will be registered in the United Kingdom in 1912. That the American car has a firm footing in England is again brought out by the Daily Consular and Trade Reports, which states that Flanders, E-M-F, Mitchell, White and Overland car agencies are established in Manchester, and the Ford company is operating a factory at that point with a yearly capacity of 3,000 to 4,000 cars. Local views are quoted:

"America is only a few days distant from England, and with the best of American methods of obtaining publicity it does not take long for the merits of a car to be made known to the English public. So far there does not seem to be any settled plan of campaign against them by the English makers. For a long time it was the practice in England to book the order and build the car afterwards. In America the firms build the car to create the demand.

"The American machine is not the thoughtlessly designed, fragile-looking article that we have been led to believe. If the British maker does not immediately rise to the occasion, the British agent and the buying public will, and when it is too late the wholesale trade will be the American's."

More than 2,000 motor cars were imported into the United Kingdom in 1911 over the number in 1910, the commercial vehicle record growing to about 14 per cent, and demands increasing.

From the Four Winds

WILLIMANTIC Club Drops Out—The Automobile Club of Willimantic, Conn., has voted to withdraw from the Connecticut state association.

New Club in Wisconsin.—The Watertown Motor Club has been organized at Watertown, Wis., with sixty charter members and fifty more in prospect. Officers have been elected as follows: President, A. R. Barker; vice-president, Dr. A. Meyer; secretary, Max G. Kusel; treasurer, Max Rohr.

St. Louis Run in the Fall—The annual reliability run of the Automobile Club of St. Louis, usually held in June, is scheduled for late August or September this year. Instead of the usual 1-day event, the run will be a 2-day affair and likely will go to Columbia, Jefferson City or some other point in the center of the state of Missouri.

Pennsylvania Breaking Tag Record—The motor car division of the Pennsylvania state highway department has issued over 46,000 licenses to owners in the state. This clips the record of the entire year of 1911 by several thousand and it is expected that the number will run close to 60,000 this year.

St. Louis Remembers Orphans—One thousand six hundred and thirty-four orphans were given rides in 160 cars of St. Louis last week during the annual orphan's day of the Automobile Club of St. Louis. All were given ice cream, cake, flags, buttons and horns by their generous hosts and were taken for rides through the parks, and over the prettiest roads in the county.

May Oil Asphalt Streets—The board of public works at Milwaukee, Wis., is considering a plan to oil asphalt streets, as is now done with macadam roadways, to make pavements dustless. It is believed the oiling of asphalt streets would be more economical than sprinkling and flushing with water. F. G. Simmons, commissioner of public works, says oil tends to preserve asphalt. Only a few years ago motorists came in for a general condemnation because oil drippings from sod pans were ruining pavements.

Illinois Promotes Something New—A contest among Illinois cities for the largest attendance of motor touring parties at the state fair next October will be arranged by the state board of agriculture. A silk American flag will be the first prize and goes to the Illinois city which sends the largest number of cars to the exhibition. There will be gold, silver and bronze medals for the cities which come next in size of the delegation. The state fair has become popular for touring parties of late years, but it is believed that the number of visitors can be increased by rivalry and the prospect of rewards. It is designed to have the cars reach Springfield on Tuesday, the fourth day of the exhibition.

Country Home Opened—The country house of the Automobile Club of St. Paul at White Bear was formally opened June 8. Boat races, swimming contests and other amusements were provided on White Bear lake at the foot of the club lawn. Dinner parties have become frequent at the club. If the popularity continues it is planned to build a $25,000 clubhouse.

Boston's Orphans' Day—The annual outing for the blind, crippled and orphaned children of Greater Boston took place June 11 under the auspices of Secretary Chester I. Campbell of the Boston Automobile Dealers' Association. Nearly 2,000 children were taken to Sharon, where they had a splendid time. There were about 300 cars used for the outing, the greater number being furnished by the owners. Previous to going to the grove there was a parade downtown through Boylston, Tremont and Beacon streets and then out through the Fenway to the picnic grounds.

Route for Little Glidden—For its fourth annual run in July to Winnipeg and return the Minnesota State Automobile Association has notified J. H. Prior, the pathfinder, to route the run so far as possible as follows: St. Paul, Minneapolis, Anoka, Little Falls, Long Prairie, Wadena or Browersville or Eagle Bend, Perham, Frazee, Detroit, Mahnomen, Red Lake Falls, Thief River Falls, Warren, Argyle, Hallock, Emerson, Winnipeg. Returning—Emerson, East Grand Forks, Crookston, Moorhead, Barnesville, Breckenridge, Fergus Falls, Elbow Lake, Glenwood, Paynesville, Annandale, Maple Lake, Buffalo, Minneapolis, St. Paul. The annual trip is calculated to take 7 days, one being spent in Winnipeg.

Brake Test Planned—A brake contest to prove that the braking efficiency of motor cars today makes speeds reasonably in excess of the legal limits perfectly safe to pedestrians and property, will be held under the auspices of the Milwaukee Automobile Club at Milwaukee some time in June or early July. Instead of a demonstration of braking efficiency, such as was held in New York a short time ago, it is proposed to add the element of competition by making it a friendly contest among all cars that dealers wish to enter. The Milwaukee police are not making arrests unless the speed within the city exceeds 19 or 20 miles per hour, considering, of course, the circumstances. The speed limit is 15 miles. Protests are made that it is not safe to permit cars to travel more than that, and the club intends to prove that the braking efficiency of modern cars renders reasonable speeds safe.

New York Has 85,300 Cars—Figures compiled by the secretary of state at Albany, N. Y., give the number of motor cars in the state as 85,300 and the state's revenue from them for the first 4 months of the fiscal year as $856,310.25. Of this number there are registered 3,622 foreign cars, which have contributed $45,388 to the fund.

Selects Show Dates—The Boston Commercial Vehicle Association held a meeting last week at which it was decided to hold the annual motor truck show at Mechanic's building March 19-23. This schedule brings it 4 days following the close of the pleasure vehicle show, the same as this year, and starting again in the middle of the week.

Indiana Tour Attracts Many—There have been approximately forty entries for the Indiana four-states tour to be conducted by the Indiana Automobile Manufacturers' Association, starting from Indianapolis on July 9. The route, which will lie through Indiana, Ohio, West Virginia and Kentucky, will be about 1,400 miles long.

Horn Measure Modified—The Philadelphia ordinance prohibiting the use of all horns on motor cars except bulb horns has been modified by an order issued by Director of Public Safety Porter permitting the use of any signal horn providing it only has one note and is not prolonged. The order is the result of a protest lodged by horn manufacturers against enforcement of the ordinance.

Tour for Overland Band—Entirely at the expense of J. N. Willys, president of the Willys-Overland Automobile Co., at Toledo, and with their salaries in the various departments of the factory going on as usual, the fifty men and boys who compose the Overland band have been given a vacation tour of 1 month which will take them to twenty-four of the principal cities of the western part of the United States, through nineteen states and over 9,000 miles of railway travel. At least one concert will be given in each of the cities on the tour in municipal parks. No admission will be charged. Among the cities to be visited on the trip, which started from Toledo June 12 are St. Louis, Mo.; Memphis, Tenn.; New Orleans, La.; Galveston, Houston, El Paso and San Antonio, Texas; Tucson, Ariz.; Los Angeles, San Francisco Sacramento and Fresno Cal.; Portland Ore.; Salt Lake City Utah; Rawlins and Cheyenne Wyo.; Denver and Colorado Springs Colo.; Kansas City Mo.;

Des Moines Ia.; Minneapolis Minn.; Milwaukee and Chicago. The musicians will reach their homes July 12.

Long Tour Carded—Motorists of Glendive, Mont., are planning a 2,000-mile tour, starting about July 20. The run will be made to the Black hills, thence to Denver and Salt Lake City, returning by way of Butte.

Tractors in Road Work—Tractor engines are being utilized in Winona county, Minn., to drag 12 miles of rough and uneven road, with the result that a fine highway is being created. The tractor hauls two drags, each loaded with two men.

Oregon Car Strength—Up to June 1 more than 8,000 motor cars and motor cycles had been registered in Oregon. This is an increase of 2,000 over the entire registration for 1911. It is fully expected that 10,000 machines will register before January 1, 1913. There is also $8,000,000 invested in cars and accessories in that state at the present time.

New London Club Organized—The Automobile Club of New London, Conn., was organized last week at a meeting called by Henry Bond, Jr., who was recently appointed chairman of the motor committee of the New London Business Men's Association. Arrangements were made to adopt by-laws and a constitution and officers will be elected at the next meeting.

Club House Assured—A corporation known as the Grand Rapids Motor Realty Co. has been formed with Charles A. Phelps, Alvah W. Brown, G. A. Hendricks and Elmer Kinsey as incorporators and M. T. Vanden Bosch as secretary. The company is capitalized at $40,000 and will own the property of the Grand Rapids Automobile Club on the Plainfield road near Grand Rapids, Mich., leasing the same to the club. All the stockholders will be active members of the club, which has purchased 128 acres of land on which the new clubhouse is being erected. The foundations are completed and work on the balance of the structure will be rushed to completion.

Bar Harbor Controversy Reopened—The controversy over the right to use motor cars on the Bar Harbor roads has started another row in the Maine summer resort that may lead to a lot of trouble before it ends. Chester A. Hodgkins, a contractor and leader in the motor controversy, was haled into court and fined on a charge of using his car on the island in violation of the law. The arrest was made upon complaint of Arthur W. Cleaves, keeper of the largest livery stable there, and on the evidence Judge Benson, himself a motor sympathizer and advocate, had to fine Hodgkins $20, finding him guilty. An appeal was taken. Now the motor sympathizers intend to insist on the enforcement of an old Maine law that prohibits the letting of any vehicles on Sunday and the carrying on of any business and they intend to try to close up the town. As Sunday is a big day for the liverymen, Mr. Cleaves may find that his insistence on observing the motor law will cost him more than it did Mr. Hodgkins.

Making Road Improvement Easier—The Seberg Tunnel and Rock Planing Co. of Racine, Wis., will soon market a machine which will plane stone, concrete and macadam streets and roadways to a smooth surface. The machine is an evolution of a device to plane rock in quarries. Its use is expected to eliminate the necessity of scarifying and re-rolling macadam roads. Gustav A. Seberg of Racine is the inventor.

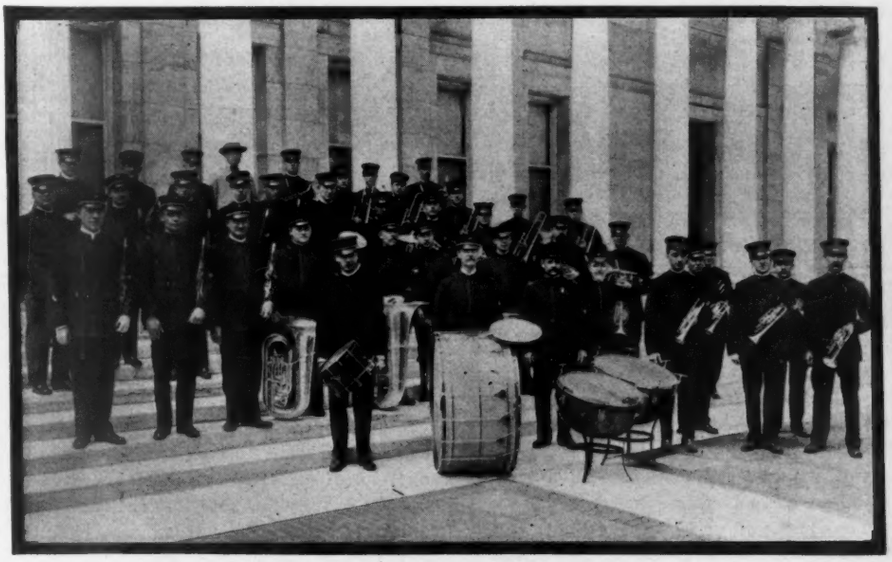
Arizona Plans a Meet—Official announcement was made during the past week that George P. Bullard, attorney general of Arizona, will manage the next Los Angeles to Phoenix race. It has also been decided to hold the race over the new course of the Ocean-to-Ocean highway. Larger purses will be offered this year. Phoenix, Ariz., will put up $2,000, Yuma $500 and other cities along the route will contribute large amounts. In addition there will be a 10-mile race for large cars participating in the Los Angeles to Phoenix race and a 10-mile race for small cars, together with $100 for the best mile record made by the large cars and $100 for the best mile run by the small cars.

German Statistics of Power Vehicles—On January 1, 1912, there were in Germany 70,006 power vehicles, 63,162 for passengers and 6,844 for freight, an increase for the year of 12,201 vehicles, or 21.1 per cent. The passenger cars were classified as follows: 23,350, or 37 per cent, pleasure and sport; 22,942, or 36.3 per cent, business, and 7,084 described as professional—doctors, surveyors, etc.; cabs and omnibuses, 5,262, or 8.3 per cent. During the year ending September 30, 1911, 18,316 motor cars crossed the frontier into Germany from foreign countries, as follows: French, 6,937; Austrian, 4,138; Swiss, 2,353; Belgian, 1,628; Dutch, 1,200; English, 628, and American, 494. The heaviest travel was in August, the number of cars crossing the border that month being 4,216. These figures are gleaned from the Daily Consular Reports.

After 18-Foot Road—Motorists and business men in Connecticut are vigorously advocating the building of an 18-foot highway of permanent pavement from Port Chester, N. Y., to New Haven, Conn. It is estimated to build this pavement of brick or wood block will cost $1,500,000, and it is suggested that the state issue bonds for that amount. The Automobile Club of Bridgeport has gone on record as favoring this project and the Stamford board of trade is agitating it.

Syracuse Sociability Sunday—The Automobile Club of Syracuse, N. Y., will hold its first sociability run of the season on Sunday, June 23, to Oswego. Fifty cars carrying 200 persons are expected to participate. En route the party will be entertained at the Pleasant Point club by President H. W. Smith. It is an 80-mile run. The club's runs and tours committee has decided to hold the annual run for the Watson cup, this being the third year, during the second week in July. A hundred cars are likely to be entered and the objective point may be Utica.

Reëlects Its Officials—The annual meeting of the Boston Automobile Dealers' Association was held last week with President John H. MacAlman presiding. The most important meeting was the election of officers and it resulted in continuing in office the men who have guided the association for several years, as follows: John H. MacAlman, president; J. S. Hathaway, vice-president; F. A. Hinchcliffe, treasurer; Chester I. Campbell, secretary; directors, the above officers and J. W. Maguire, A. P. Underhill, C. F. Whitney, Charles E. Fay, E. A. Gilmore and F. A. Wing. The association agreed to the dates of March 8-15 for the motor show, as agreed upon by Manager Campbell in conference in New York with the Automobile Board of Trade.



OVERLAND BAND TOURING BIG CITIES

Current Motor Car Patents

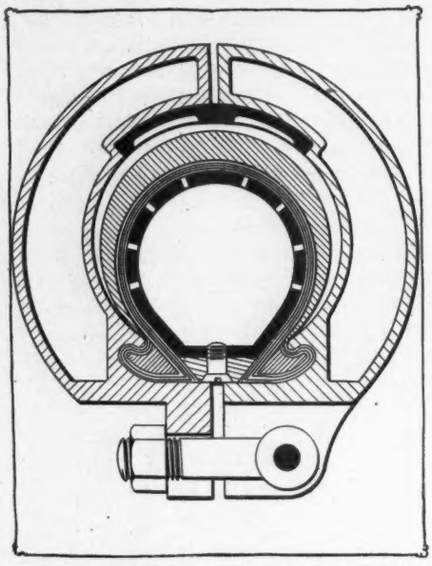


FIG. 1—AMERICAN TIRE CO.'S MANDREL

PATENTS ISSUED JUNE 11, 1912

1,028,854—Vehicle Signal. Edward J. Best and Charles M. Fitch, Chicago, Ill. Filed December 27, 1910. Serial No. 599,318

1,028,866—Turning Device for Vehicles. John N. Eadie, New York, N. Y., assignor to Eadie Vehicle Gear Co., a corporation of New Jersey. Filed August 6, 1908. Serial No. 447,205.

1,028,876—Transmission Gearing for Motor Vehicles. Robert Gaston Hargrave and Charles F. Adair, Tucumcari, New Mexico. Filed December 3, 1910. Serial No. 595,525.

1,028,889—Spring Cushion Tire for Vehicle Wheels. Arthur J. Layhon, Lowell, Mass. Filed January 3, 1911. Serial No. 600,564.

1,028,975—Motor Car. William E. Stanley, Hawkinsville, Ga. Filed December 14, 1910. Serial No. 597,209.

1,028,980—Electric Signaling Device. Theodore Weiss and Theodore A. Walther, Chicago, Ill., said Walther assignor to said Weiss. Filed October 21, 1911. Serial No. 656,060.

1,029,018—Transmission and Control System. Henry M. Kinney, Winona, Minn., assignor to Winona Wagon Co., Winona, Minn., a corporation. Filed September 22, 1911. Serial No. 650,750.

1,029,026—Spark Regulator for Explosion Engines. Charles Henry Newman, Blackstone, Va. Filed March 3, 1911. Serial No. 612,139. Renewed November 10, 1911. Serial No. 659,670.

1,029,027—Pneumatic Tire Protector. Albert H. Rawitzer, Omaha, Nebr. Filed November 9, 1911. Serial No. 659,313.

1,029,052—Steering Gear. Charles J. Engle, Bert W. Freeman and Daniel E. Neal, Moline, Ill. Filed March 28, 1910. Serial No. 552,032.

1,029,109—Transmission Gearing. Aaron F. Dickey, Somerset, Pa. Filed July 3, 1911. Serial No. 636,802.

1,029,111 — Carbureter Adjusting Device. Harry S. Echternach, Strasburg, Pa., assignor to Virgil A. Meck, Strasburg, Pa. Filed May 15, 1911. Serial No. 627,293.

1,029,147—Friction Clutch. George W. Shaffer, Buffalo, N. Y. Filed January 23, 1911. Serial No. 604,110.

1,029,177—Spring Wheel. William T. Dulany, Jr., Arlington, N. J. Filed June 29, 1911. Serial No. 636,077.

1,029,181—Mechanism for Preventing Excessive Speeding of Motor Cars. Ethelbert Favary, New York, N. Y. Filed September 19, 1906. Serial No. 335,270.

1,029,190—Rubber Vehicle Spring. Milton Handy, Worcester, Mass.; Annie W. Handy, administratrix of said Milton Handy, deceased. Filed October 1, 1910. Serial No. 584,842.

1,029,192—Four Phase Single Piston Valveless Motor. Charles Edouard Henriod, Neuilly-sur-Seine, France, assignor to Societe Ribeyrolles & Cie., Puteaux, Seine, France. Filed November 23, 1909. Serial No. 529,585.

1,029,215—Tire Protector or Shield. Arthur H. Morton, Cleveland, Ohio. Filed December 11, 1911. Serial No. 664,914.

1,029,241—Sanitary Eye Shield. John F. Snyder, Oakland, Cal. Filed April 27, 1911. Serial No. 623,555.

1,029,252—Shock Absorber. Owen B. Ames, Brewster, N. Y. Filed November 20, 1911. Serial No. 661,302.

1,029,263—Vehicle Tire. Eugene H. Bingham and Theodor Tominski, San Francisco, Cal. Filed October 12, 1910. Serial No. 586,737.

1,029,288 — Sliding Door. Clay Gordon, Greenfield, Ohio, assignor of one-half to C. R. Patterson and Sons, Greenfield, Ohio, a copartnership. Filed January 3, 1911. Serial No. 600,487.

1,029,290—Starting Device. Henry Henken, Savannah, Ga. Filed January 6, 1911. Serial No. 603,035.

1,029,299—Spring Wheel. William H. Howsley, Jr., Adams, Tenn. Filed February 19, 1912. Serial No. 678,523.

1,029,301—Combined Lifting Jack and Brake Mechanism for Motor Cars. Alex Kertesz, Newark, N. J. Filed January 10, 1912. Serial No. 670,487.

1,029,303—Gun to Be Mounted Upon Motor Car. Norbert Koch, Essen-Rellinghausen, Germany, assignor to Fried. Krupp Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed August 23, 1911. Serial No. 645,556.

1,029,323—Resilient Vehicle Wheel. Harry J. Sheedy, Scranton, Pa., assignor of one-half to Jacob R. Schlager, Scranton, Pa. Filed August 19, 1911. Serial No. 644,979.

1,029,331—Automatic Lubricating Device. Otto Winkler, Kopenick, Germany, assignor to General Electric Co., a corporation of New York. Filed December 27, 1911. Serial No. 668,016.

1,029,340—Automatic Tire Pump. Albert Brest, New Castle, Pa. Filed December 26, 1911. Serial No. 667,857.

1,029,355—Flexible Coupling. William J. Francke, New Brunswick, N. J. Filed January 25, 1912. Serial No. 673,282.

1,029,398—Internal Combustion Engine. Rawley H. Powell, Grafton, W. Va. Filed April 20, 1911. Serial No. 662,188.

1,029,401—Resilient Spoke. George T. Reichenbach and Jacob G. Peck, Portland, Oregon, assignors to H. O. Peck Automobile Wheel Co., Inc., Portland, Ore. Filed May 10, 1911. Serial No. 626,159.

1,029,412—Grease Cup. Oscar Zerk, Cleveland, Ohio, assignor to the Zerk Mfg. Co., Cleveland, Ohio, a corporation of Ohio. Filed September 2, 1910. Serial No. 580,217.

1,029,419—Internal Combustion Engine. Everett R. Burnett, San Mateo, Cal., assignor of one-third to Robert E. Bowle and one-third to Thomas D. Heydenfyldt, Redwood City, Cal. Filed May 15, 1911. Serial No. 627,195.

1,029,429—Spring Hub. George H. Davis, Advance, Mo. Filed December 22, 1910. Serial No. 598,783.

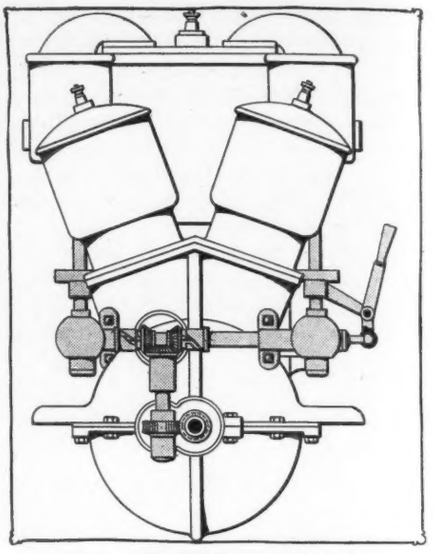


FIG. 2—EISENHUTH'S REVERSING MECHANISM

1,029,447—Lifting Jack. Niels Jantzen, Victoria, B. C., Canada, assignor of one-half to Burtren Alexander Holden, Victoria, Canada. Filed November 22, 1910. Serial No. 593,734.

1,029,454—Lubricator. Henry C. Noffsinger, Jewell, Ohio. Filed March 15, 1911. Serial No. 614,651.

1,029,460—Fluid Pressure Engine. Charles Benjamin Redup, Cardiff, England. Filed June 15, 1911. Serial No. 633,334.

1,029,462—Shock Absorber. Stanford Walton Rife, San Marcos, Tex. Filed May 17, 1911. Serial No. 627,723.

1,029,478—Shock Absorber. Walter R. Sturgeon, Sterling, Kan. Filed September 6, 1911. Serial No. 647,827.

1,029,493—Robe Rail Lock for Motor Cars. Verkie Lucas De Dontney, Denver, Colo. Filed December 13, 1911. Serial No. 665,591.

1,029,496—Pump for Motor Car Alarms. William Henry Garlock, Seattle, Wash. Filed October 18, 1911. Serial No. 655,293.

1,029,514—Dirigible Light Support. William A. Sapp, Elgin, Neb. Filed September 7, 1911. Serial No. 648,086.

1,029,547—Force Feed Oiler. Axel Levedahl, Aurora, Ill., assignor to Aurora Automatic Machinery Co., Aurora, Ill., a corporation of Illinois. Filed November 7, 1910. Serial No. 591,012.

1,029,549—Change Speed Mechanism. Robert Milne, Rockford, Ill. Filed June 29, 1911. Serial No. 636,040.

1,029,553—Emergency Tire. DeWitt Nelson, Minneapolis, Minn. Filed January 27, 1908. Serial No. 412,801.

1,029,569—Vehicle Tire. August Kleinatland, Paterson, N. J., assignor to Atlantic Punctureless Tire Co., Paterson, N. J., a corporation of New Jersey. Filed April 8, 1911. Serial No. 619,696.

PACKARD'S Rear Body Arrangement—No. 1,029,063, dated June 11; to Russell Huff, Detroit, Mich., assignor to Packard Motor Car Co. This patent covers a method of mounting a tail lamp and a rear license number plate, which has been distinctive of the Packard cars for some time. It consists of a combination with the body and the fenders extending rearwardly beyond the body of a license plate mounted on and directly above the extended parts of one of the guards, and a tail lamp mounted on and directly above the extended part of the other guard, with one of its lenses facing the license plate. The license plate has its face at a slight angle to the transverse axis of the vehicle so that the face of the plate may be observed from the rear and at the same time illuminated from the lamp mounted on the other side, as illustrated in Fig. 3.

Method of Making Pneumatic Tire Casings—No. 1,029,307, dated June 11; to Nelson W. McLeod, St. Louis, Mo., assignor to American Tire Co., St. Louis, Mo. This covers a method of making tire casings consisting in forming a casing structure of fabric and raw rubber, and thereafter placing the thread of the fabric under uniform tension to approximately the limit of the elasticity of the thread by applying pressure inside, and finally vulcanizing the structure so that the threads are set in their stretched condition. The casing structure of fabric and raw rubber is laid around the periphery of an annular mandrel, as illustrated in Fig. 1, condensing the portions of the fabric at the sides of the mandrel and then applying the pressure.

Manufacture of Radiator Tubes—No. 1,029,099, dated June 11; to Emil Behr-

inger and Herman Behringer, Brooklyn, N. Y. The method covers making a radiator tube from a single sheet of metal and consists in creasing the sheet to produce two series of corrugations that are offset from one another so that diagonal deflections are formed between them, then folding the sheet to bring the corrugations parallel at a proper distance from each other and seaming the ends of the sheet.

Means of Heating Engines Before Starting—No. 1,029,380, dated June 11; to Abbot A. Low, Horseshoe, and Harry Hertzberg New York, assignor to Abbot A. Low. The claims of this patent cover a combination of an internal combustion engine with a waterjacketed cylinder and circulating pipes connected to the waterjacket, a bypass connected to the circulating pipes at each side of the waterjacket with valves for controlling the flow of water through the circulating pipes, which valves direct the flow of water through the bypass and waterjacket and cut out the circulating pipes. Upon one of the pipes is mounted an electric water heater which heats the water when it circulates through the bypass and waterjacket. This heater comprises a series of resistance coils included in an electric circuit and envelopes one of the circulating pipes for heating the water so that the engine cylinder may be heated before starting the engine. The valves merely cut off the normal circulating system of the cooling system and allow the water to circulate through the waterjacket and heated bypass.

Reversing Mechanism for Motors—No. 1,029,430, dated June 11; to John Eisenhuth, Brooklyn, N. Y. The inability of the ordinary type of motor to be reversed should make a workable reversing mechanism valuable. The device to which this patent refers embraces a hollow shaft with gear wheels loosely mounted upon it, the hubs of which are provided with a slot. Within this hollow shaft is a rotating rod with a connection between the rod and the valve shaft with lugs on the rod to enter the slots of the hubs and so bring either of the gears into operation on the hollow shaft. The construction is such that when the rod has rendered either of the gears active the motor will have reversed its operation without changing the direction of the rotation of the hollow shaft. The arrangement is illustrated in Fig. 2.

Cadillac Dynamometer—No. 1,029,163, dated June 11; to Richard T. Windo, Detroit, Mich., assignor to Cadillac Motor Car Co. The arrangement covered by the claims of this patent is for the purpose of making dynamometer tests on motor cars and is illustrated in Fig. 5. It consists of a pair of lifting jacks which may be operated independently or simultaneously, a dynamometer mounted adjacent to the lifting jacks and having a shaft with pulleys on each end of it, the pulleys arranged to be secured to the driving wheels of a motor car whose rear axle is mounted on the upper ends of the lifting jacks. Belts connect the pulleys on the dynamometer and the rear axle. The jacks comprise a pair of sleeves with a ram in each sleeve at the upper end of which is a socket to engage the rear axle. A jack screw is mounted in each sleeve and a nut in each ram in which the screw engages. A gear meshing with each gear secured to the jack screw is arranged so that either or both can be connected to the operating gear at will. These gears are beveled gears and are secured to the lower end of each screw. There is a horizontal bearing at each bracket and a bevel gear mounted in each bearing and engaging the bevel gear in the jack screw. By this means either wheel or both can be raised.

The Motorists' Bookman

Knots and Rope-Work

IN A. Hyatt Verrill's "Knots, Splices and Rope-Work" one is made to realize by his introductory remarks how much the tying of knots, which has seemed a most ordinary and commonplace affair of everyday life, has in fact played a most important role in the world's history. This little book of 100 pages gives simple directions for making all kinds of knots, with chapters on splicing and rope-work. The 150 illustrations show clearly how each knot, tie or splice is formed and its appearance when completed. "In a life of travel and adventure in out-of-the-way places, in yachting or boating, in hunting or fishing, and even in motoring, to command a number of good knots and splices is to make life safer, easier, and more enjoyable, aside from the real pleasure one may find in learning the interesting art of knot-tying." Norman W. Henley Publishing Co., New York. Price, 60 cents.

Works Management

According to William Duane Ennis, M. E., in his book "Works Management," there are underlying principles in good management other than the machine-shop accomplishments which F. W. Taylor advocates in his book "Scientific Management" which are matters, so Mr. Ennis thinks, of mechanical method rather than management. The author takes the view that industrial administration is the vital human problem in its latest aspects, and that "to increase the labor-hour production has been justly called the highest human good."

The book is written, in part, with the idea of its possible use as a text-book in the presentation of some of its principles in factory administration and some exercises are given to emphasize this in class-room instruction. He avers that management is rather an art than a science and to some extent the manager like "the poet is born and not made, but that in all art there are certain underlying principles and rules that must be observed," and it is these principles that he attempts to prove of value in economy of time and strength. McGraw-Hill Book Co., N. Y. Price, $2 net.

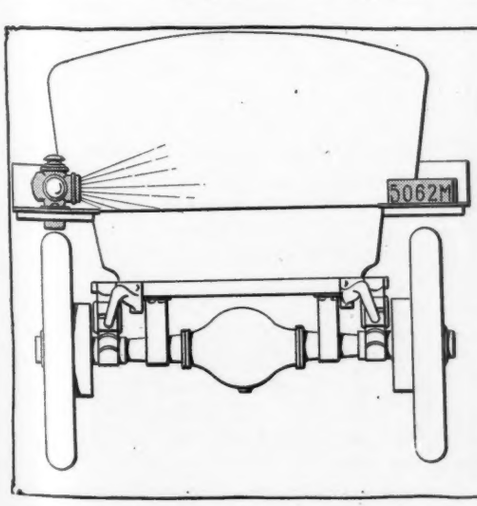


FIG. 3—PACKARD'S TAIL LIGHT

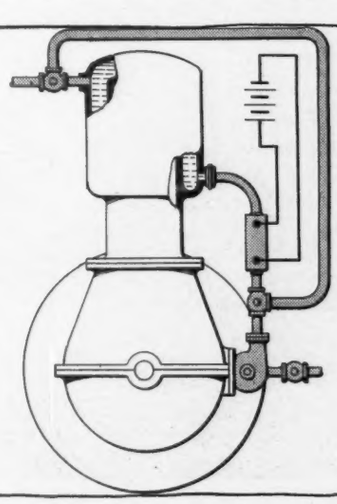


FIG. 4—LOW JACKET WATER HEATER

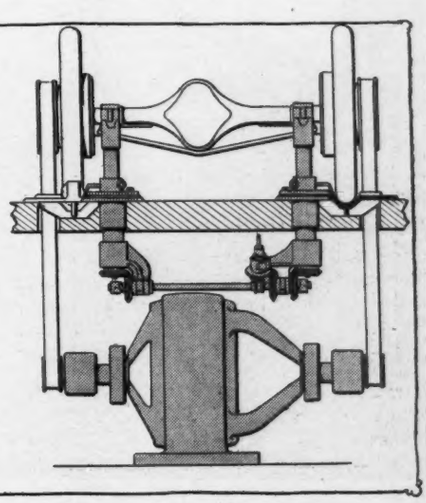


FIG. 5—CADILLAC TESTING JACK

The Realm of the Motor the Servant of the City of Rouen

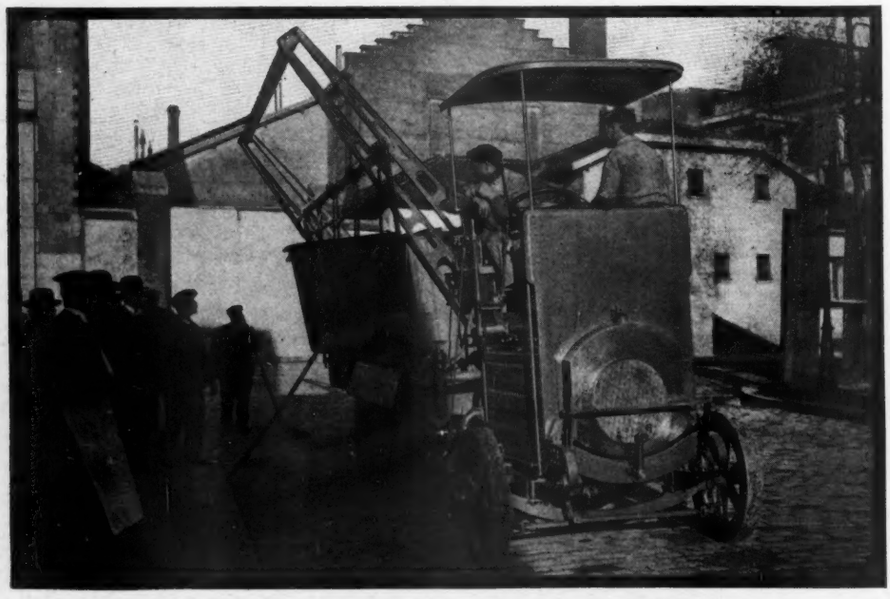
French Utilize Power-Propelled Vehicles to Collect Garbage, Flush the Streets and Also to Act as Auxiliary Fire-Fighting Apparatus—Special Refuse Wagons Built for Municipal Service Doing Good Work

DISSATISFIED with the usual slow and unhealthy methods of collecting house refuse by means of horse vehicles, the city of Rouen, France, has taken the initiative of a quick motor service. As in many American cities, the Rouen method originally consisted of a house-to-house collection by means of horse-drawn wagons, the contents of the respective bins being dumped into the wagon and carried to the city destructor.

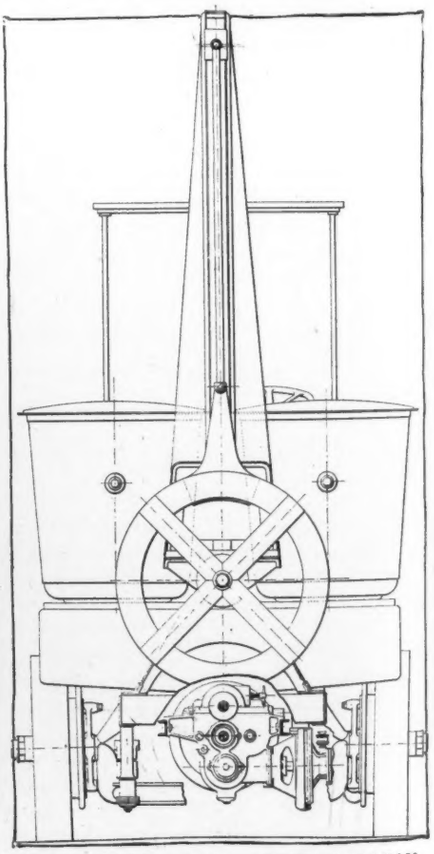
After considerable experimenting, the city has taken delivery of a set of patented motor refuse wagons built by the firm of Sautter-Harlé & Co., of Paris, and has entirely abolished the use of horses in this department. It was not only desirable from a municipal standpoint, but it also was essential for economic working, that the motor trucks should move much faster than the horse vehicles. The speed was limited by the stops at houses for picking up bins. It therefore was necessary to reorganize the entire system, to divide the city into a small number of blocks, give each section a large-capacity bin which could be taken along the streets during the night or in the early morning, in the charge of one man whose duty it was to collect the household refuse and, on the completion of his district, leave the full bin at some appointed place, on the edge of the sidewalk, to be called for by the motor truck.

The new vehicles therefore are refuse bin distributors and collectors. On their special platform body they carry eight big-capacity metal bins, in two rows of four, and by means of a special overhead crane worked off the motor, deposit these bins at various street corners. Each truck begins work by taking eight empty bins, dropping them down at the appointed places, returning to the depot for eight more, dropping these at their respective stations, and continuing until the entire district has been covered. All the bins having been distributed, each vehicle starts again on its first round, picks up the first bin dropped, goes on to the second, and continues until the eight full bins are aboard, when it makes a journey to the destructor and drops off the whole eight, lining them up in the grounds ready to be received by a traveling electric crane.

The feature of the system is that the bins can be loaded and unloaded practically without any manual labor. Without leaving his steering wheel, the driver can put his overhead crane in motion, lower an empty bin to the pavement and in a few seconds be on the move again. When he begins the work of collecting, the laborer who has been employed in the house-to-house collection is on hand to attach the hooks of the crane to the bin, the task of lifting and depositing it in its right place on the truck being performed by machinery. When unloading at the destructor, all four bins are set down in one operation; then the four on the other side follow, the unloading of the 3½ tons of refuse occupying about 3 minutes. It is the most cleanly system yet devised, all the responsibility for scattered refuse resting with the man who wheels the bin through the streets and dumps the household refuse into it. When he has finished



ROUEN'S MOTOR REFUSE WAGON COLLECTING GARBAGE



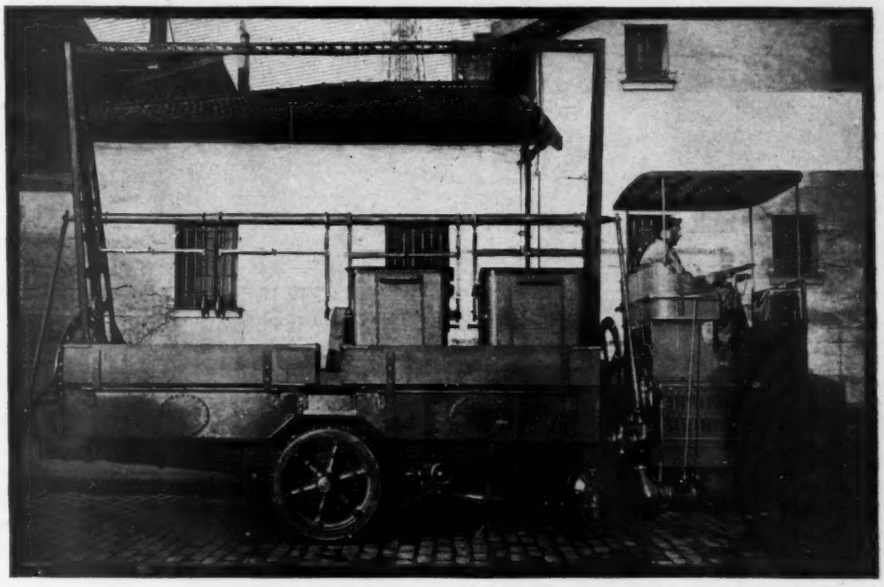
FRONT ELEVATION OF REFUSE WAGON

Commercial Car

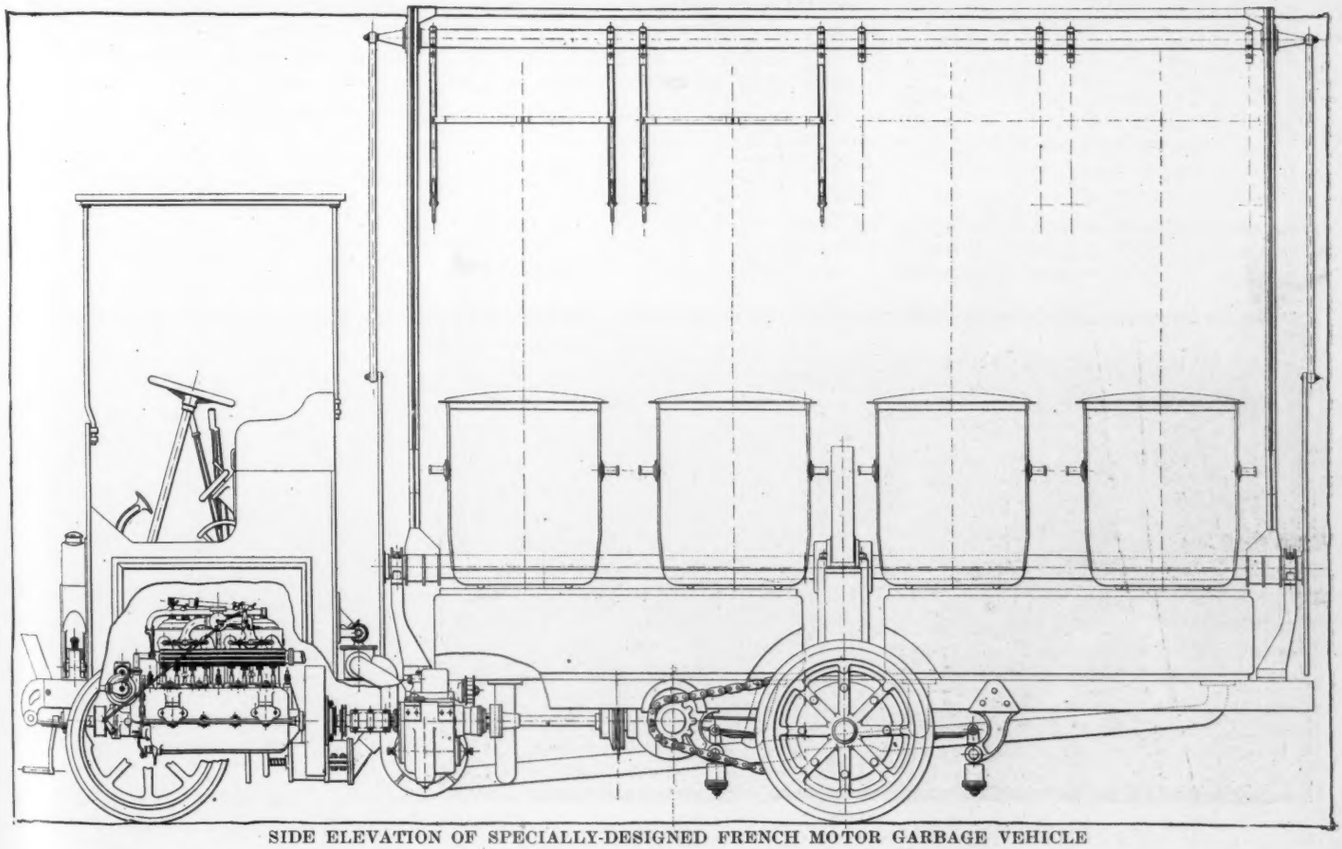
his block or blocks, he shuts the lid down tightly, and there is no necessity for it to be taken off, nor for the bin to be handled by any human being until it is again brought back empty for another house-to-house visitation.

The most interesting feature of the truck, and the one that has necessitated the greatest amount of experimenting is the overhead crane. It had to be simple and easy to operate, capable of lifting 1¾ tons in a single operation, yet delicate enough to handle a single empty bin, adjustable so as to take bins from either the left or the right rank, and drop them down either to the left or the right within a variable distance of the truck. These details have been well worked out, the firm of Sautter-Harlé has secured a patent on this method of loading and unloading, and the city of Rouen, with a population of 112,000, collects all its refuse with seven of these trucks and one in reserve.

In its main features the chassis follows standard lines. The motor is a four-cylinder in pairs measuring 4 by 6.2 inches bore and stroke, carried on a sub-frame attached to the longitudinals by transverse members and placed directly under the driver's seat. For economy, the carbureter is designed to consume benzol; the lubrication is under pressure through a bored crankshaft to all parts and ignition is by a high-tension magneto. After passing through a four-speed gearbox, the drive is taken to the rear wheels through a jackshaft with differential combined with it, and by side chains to the rear wheels. For the sake of economy in upkeep, the use of rubber has been forbidden on the road wheels. Steel wheels with



SIDE VIEW OF REFUSE WAGON USED IN ROUEN

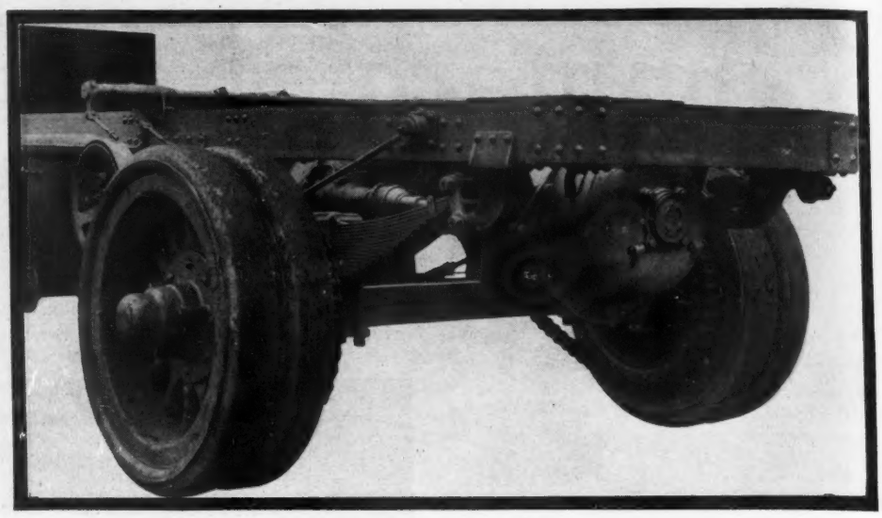


SIDE ELEVATION OF SPECIALLY-DESIGNED FRENCH MOTOR GARBAGE VEHICLE

metal bandages are employed, there being a wooden felloe between the steel spokes and the metal bandage, and provision made for quick changing of this latter when wear has developed. The absence of rubber has made it necessary to strengthen the castings; thus instead of aluminum the crankcase is a bronze alliage, with short, stout hangers, and cast steel is used for the differential housing.

The crane consists of two steel girderwork uprights, one at the front and the other at the rear of the body, united at their upper end by a transverse beam. There is another transverse beam having a sliding motion in the uprights, and it is from this beam that the chains with their automatically clamping hooks for receiving the bins are attached. The drive is taken primarily from the gearbox to a fore-and-aft shaft on the end of which is a pinion engaging with a gear on a stout horizontal shaft running the full length of the truck and connected up at its respective ends to the two uprights of the crane. A combined motion is necessary, for the bins have first to be raised vertically and then swung outboard. This first movement is obtained by the raising of the transverse beam between the two uprights, and the second by swinging to left or right of the entire crane. It is on these features that the Sautter-Harlé company holds patents.

Garbage collecting can of necessity occupy but 4 or 5 hours of each day. The trucks therefore have been designed to do other work. The entire body space is occupied by a water tank having a capacity for 580 gallons. The tanks are shallow and are mounted permanently in position, so that the bins can be carried on the top of them without materially raising the center of gravity. By means of a water pump taking its drive off the gearset, and a couple of sprinklers to left and right of the truck, these vehicles can be employed during the day for street watering. As they can cover a width of 50 feet, they are capable of watering the widest streets at one operation. The pump is brought into engagement by the operation of the usual change speed lever and can be driven either when the vehicle is standing or in motion. On the other hand, the crane is only put into operation when the truck is at a standstill.



REAR VIEW OF WAVERLEY 5-TON ELECTRIC CHASSIS

A still further use of these vehicles is in connection with fire-fighting, where they are employed merely as auxiliaries. They are more valuable for pumping out submerged buildings, the pumps being specially designed for this work, and as portions of the city are liable to be flooded in winter they often are used for this purpose. As the result of adopting this system, the city of Rouen has its refuse cleared away in much shorter time than before, it has considerably diminished its scavenger staff and has reduced working expenses.

WAVERLEY ELECTRIC 5-TON TRUCK

A new addition to the Waverley line of commercial vehicles is a 5-ton truck. The truck is 17 feet 8 inches long and has a carrying space of 14 feet by 6 feet 6 inches wide, and weighs 11,200 pounds, the battery alone accounting for 2,540 pounds of weight. The battery consists of forty-two cells, each containing twenty-five plates, and has a capacity of 324 ampere hours. One 85-volt 60-ampere motor is located at the extreme rear end, with the motor shaft operating heavy chain drives. The weight of the truck, 10½ tons loaded, is supported on solid tires 36 by 7-inch front, and 36 by 5-inch double tires rear. The car has a rated mileage of 35 miles per charge on level roads.

ALCO FIRE TRACTOR

A new motor tractor has just been delivered to the fire department of Schenectady, N. Y., as a part of the motorized fire apparatus of that city. The truck is an Alco of special design. One of the features of the truck is the incorporating of a fifth wheel idea. This is a device whereby the truck attached to the tractor is guided independently of the tractor. The design of the wheel is such that its operation is not affected when the tractor drops into a hole or goes down a steep grade. Otherwise it is like the fifth wheel generally used on horse-drawn vehicles.

The tractor has a four-cylinder motor 5 by 6 inches. Its wheelbase is 110 inches, with a length over all of 178 inches. It is equipped with solid tires, 36 by 5 inches in front and 36 by 4 inches dual in rear. The front springs are 47 inches long and the rear springs 54 inches.

Though built primarily as a tractor for a hook and ladder truck this vehicle is declared by its designers to be available for other service in which the fifth wheel is an advantage.

CATONSVILLE EQUIPPED

The fire department of Catonsville, Baltimore county, Md., is now fighting fires with its new 110-horsepower La France motor fire engine. This car is a six-cylinder and is equipped with 1,500 feet of 2½-inch hose, 20 feet of 5-inch suction hose, a 40-gallon chemical tank, 200 feet of 1-inch chemical hose, three extinguishers, one 22-foot extension ladder and one 12-foot roof ladder. The engine is a combined chemical and pumping affair and

BOSTON'S NEW 40-HORSEPOWER WHITE POLICE PATROL WAGON

the pump has outlet for three lines of hose and the pumping capacity is 800 gallons a minute. The old 70-horsepower motor chemical and pumping engine which was for the past 6 months used by the Catonsville department has been transferred to the Hamilton and Lauraville department in the county.

ST. PAUL TO MOTORIZE

St. Paul's fire commissioners, after 6 months' debate, have decided to begin motorizing the department. Specifications are being prepared for a motor propelled engine and it will be bought within 2 weeks. The city is expected to buy the Waterous company engine made in St. Paul which was built by a St. Paul company.

ALCO STARTS FOR COAST

The first transcontinental delivery in history by motor truck is scheduled to start today when a 3-ton cargo of goods will be sent by Charles W. Young & Co. of Philadelphia to the Carlson-Currier Co., a concern in Petaluma, Cal. The truck will travel 4,436 miles. In addition to being the first ocean to ocean trip in actual commercial service this is the longest distance delivery on record by a motor truck, it is claimed.

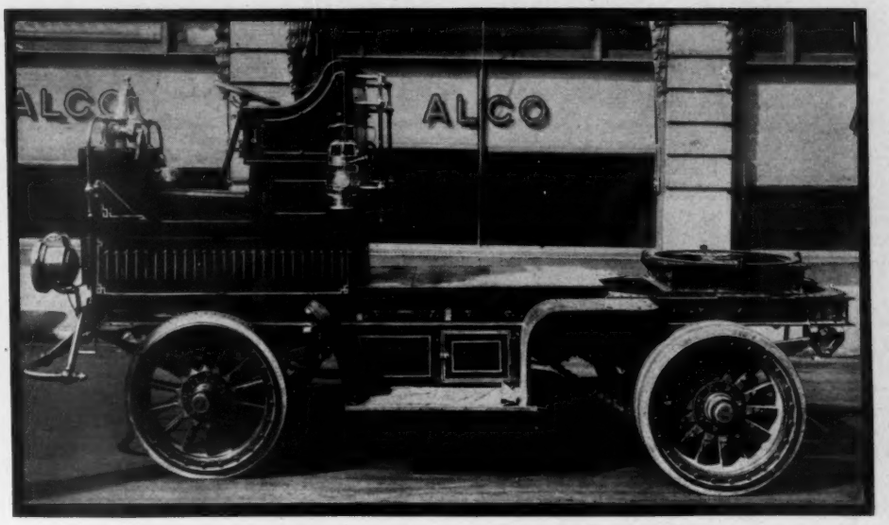
The decision to run the vehicle across the continent followed the receipt Saturday of this telegram from the coast concern by Charles W. Young & Co.:

"Please send us 3 tons Parrot brand Olive Silk soap to be delivered by one of your Alco trucks from Philadelphia to mills at Petaluma, Cal."

To the message this reply was sent:

"Your telegraph order for 3 tons Parrot brand Olive Silk soap received. Same will be delivered your mills Petaluma, Cal., by Alco motor truck as requested. Truck with load will leave Philadelphia June 20, 1912."

Letters of greeting will be carried from Governor John K. Tener of Pennsylvania to Governor Hiram W. Johnson of California, and from the secretary of the Philadelphia trade bodies to the secretaries of the San Francisco and Los Angeles trade bodies. E. L. Ferguson, an executive in all the Glidden tours and an official in a number of other tours, will be in charge of the expedition. It is expected that the trip will occupy about 45 days.



ALCO FIRE TRACTOR WITH FIFTH WHEEL

Before starting on its trip the vehicle will participate in a big motor truck parade in Philadelphia. Later in the afternoon the truck will put out for the coast. The plans are to spend the first night in Trenton. The following morning New York will be reached and the course from here will lead via ferry to Newburg, Kingston, Poughkeepsie and Albany as the second day's run.

From Albany the route taken will be to Chicago by way of Syracuse, Buffalo, Cleveland, Toledo and South Bend. From here the route will include Davenport, Des Moines, Omaha and Denver.

The Cheyenne route to Salt Lake will then be followed. By what is known as the southern route via Wolcott, Grand Junction and Green river the truck will make its way through desert and mountain passes to Reno; thence to Sacramento, Stockton, San Francisco and Petaluma.

The truck will contain all the latest equipment for battling with bad roads. One of the new features of the vehicle will be its new type of body, which is of all steel construction and considered especially adaptable for the rough trip. Two drivers will pilot the truck.

FIRE CHIEFS VISIT ELMIRA

The American-LaFrance Fire Engine Co. of Elmira, N. Y., had officials of fire departments of various cities inspecting the engines being manufactured at its plant last week. Chief Taylor, Master Mechanic Buetelle and Messrs. Redfield and Harrer of the Highland Park, N. J., department were there to purchase a triple combination motor-propelled fire apparatus, including the engine, chemical, hose wagon and truck. Chief Russell of Kalamazoo, Mich., came to buy a double extra first class engine and a rebuilt engine. Chief Engineer Shepard, Alderman Thomas and Captain Hazzard, accompanied by firemen, all of Pittsfield, Mass., came to inspect a 65-foot aerial truck, motor-driven, and weighing 14,000 pounds without the crew. The aerial truck was tested, carrying sixteen men at top speed to the top of Jerusalem hill. After the tests were given, all the visiting fire officials were entertained at fire headquarters by Fire Chief John Espey of the Elmira department.

COMMERCIAL BREVITIES

The board of fire engineers of Revere, Mass., has just voted to purchase a combination hose and chemical and also a runabout for the newly elected chief of the department, Arthur Kimball.

The legislature has given the town of Middleboro, Mass., authority to borrow money to improve its fire department, and the selectmen are now looking into various makes of motor apparatus.

The town fathers of Arlington, Mass., are so well pleased with the motor apparatus attached to the fire department that they are after more, and now they want a combination hose and engine that will pump a good stream.

KNOX COAL-DUMPING BODY USED IN FALL RIVER, MASS.

Among the Makers and Dealers

SALESROOMS OF SOUTHERN TIER MOTOR CO., ELMIRA, N. Y.

CASTLE Not Moving—The Castle Lamp Co. denies the report that it intends moving from Amesbury, Mass., to Richmond, Ind.

Rayfield Has New Branch—The Findeisen & Kropf Mfg. Co., maker of the Rayfield carbureter, is about to open up a new Chicago salesroom just north of Twelfth street on Michigan avenue.

Added to Michigan Staff—The announcement that W. H. Cameron, for 4 years chief engineer of the Willys-Overland Co., has become head of the Michigan engineering staff is followed by the announcement that George H. Daugherty has joined the company's forces as advertising manager.

To Make Martin Tractor—Within a short time C. H. Martin, inventor of the Martin tractor, expects to establish a factory for the manufacture of the device in Indianapolis. He has been in that city seeking a location. With the use of Martin's device, any farm wagon or vehicle may be converted into a motor vehicle within a short time. The device is now manufactured in the east.

Fleecing Tire Dealers—Dealers in tires should be upon their guard against something new in the swindling line. Ziegler Brothers of Elgin, Ill., are the first victims reported. Going to the Ziegler Brothers' place of business the man found a tire, but which was the only one in stock. He asserted that he required two and asked if one could be ordered. The clerk replied that an order would be placed. The fellow then gave the name of a prominent driver as the person wishing the pair of tires, and stating that he would take the one along and to rush the other to the house of the car owner mentioned, left. When the second tire arrived a week later and was sent to the home of the man named, it was discovered that he had not sent in any such order for tires.

Franklin Anniversary—June 23 will be the tenth anniversary day of the selling of air-cooled motor cars in Syracuse, N. Y., and practically the tenth birthday of the air-cooler. On this day in 1902, S. G. Averell of New York gave his check for $1,200, this check being in payment for the first Franklin car placed on the market.

New Chevrolet Self-Starter—A self-starting device which is being used on one of the cars of the Chevrolet Engineering Co. has compressed air for its motive power, which is carried in a long tank in the rear of the seat. The device operates by means of a ratchet that applies power to the flywheel. It is said that this self-starter will turn the motor over 3,000 times with one charge. Arrangement is also made to use the compressed air for tire inflation.

Body Plant Growing—The Dayton Body Co., Dayton, Ohio, has bought a tract of land on the corner of Miami Chapel road and the Big Four railroad, and will erect a three-story brick building, 96 feet front and 428 feet long, for the manufacture of open type pleasure car bodies, inclosed and open delivery bodies and platform wing and stake truck bodies. The present factory at 618 to 624 Geyer street will be devoted exclusively to the making of coupe, limousine, taxicab and special enclosed bodies. The new factory will have 400,000 feet dry kiln capacity. This new factory will be all electric drive, and so arranged that raw materials flow in at one and completed bodies out at the other. Painting and trimming both factories' product will be done at factory No. 2. This new factory is expected to be in operation in time for 1913 business.

New Radiator Factory—On or about July 1 the Todd Mfg. Co. of Minneapolis will open a factory for the manufacture of radiators for all purposes, and will make hoods, fenders, drip pans, tanks and other sheet metal specialties for motor cars. The parties representing the firm are Frank Todd, former superintendent of the Long Mfg. Co. of Chicago and Detroit; B. A. Wolfe, former assistant secretary, and Morgan C. Wood.

Webb Moving to Newark N. J.—The Webb Motor Fire Apparatus Co. of St. Louis will move to Newark, N. J., in the fall. Mack truck interests, it is said, have taken a financial interest in the company. During 1911 the concern made and delivered an even 100 pieces of fire apparatus. This year its business is reported even larger. Milton A. Strauss, formerly with the Moon Motor Car Co., has been appointed sales manager of the Webb concern.

New Electric Truck—Charles Van Auken and George Jacobs of Pontiac, Mich., have completed a new electric truck which soon will be placed on the market. The truck, it is claimed, can handle 70 per cent of its own weight. Demonstrations have been given before representatives of the Westinghouse Electric Co. The inventors have not made public their plans for manufacture, but state that Pontiac capital may have the first chance to get the factory. If they do not locate in Pontiac they will go either to Detroit or Chicago.

Ford Establishing Assembling Branches—A special department of the Ford Motor Co. is at work, installing a system of assembling branch factories, destined to exert an immense influence on the distributing system of this company and, possibly, on all the other large manufacturers of motor cars. The branches already announced will be situated at Los Angeles, San Francisco, Kansas City and New York. It is also likely that Dallas and Seattle will be included in the system, with further additions to be made after the plan has been given a more prolonged trial. The Ford people are endeavoring, by this plan, to make a radical cut in freight and express charges which will enable them to market their product more cheaply at cities considerable distances from Detroit. At present the shipping expense enters vitally into the selling price of a car. On the Pacific coast this difference amounts to a sum that approximates $100. Cars shipped in knock-down condition occupy far less space. The shipping expense will

be proportionately less and the plan possesses the further advantage that a freight car famine would be far less disastrous.

New Universal Service Station—The Universal Truck Co. has broken ground at Twenty-sixth and South Park avenue, Detroit, for a $60,000 service station. This concern is affiliated with the Flanders interests and is managed by F. K. Park, former auditor of the Studebaker Corporation.

Timken Offers Prizes—The distribution of $200 in cash prizes to the persons reporting cars which have traveled the greatest number of miles on Timken roller bearings in front or rear wheels, without repair or replacement, is announced by the Timken Roller Bearing Co. of Canton, O. Records of the best mileage may be submitted by dealers, agents, car owners, or employees of public garages. The contest closes August 31.

To Make Gas Machines—The Consumers' Carbide Gas Co. has been organized in Indianapolis to manufacture acetylene gas machines and has been incorporated with an authorized capitalization of $100,000. Those interested in the company are Newton J. McGuire, assistant city attorney of Indianapolis, who is to be president of the company; A. J. Schmidt, Robert Clark, C. W. Scroggin and O. K. Stuart, who has conducted a similar business which the new company will succeed.

Canadian Plant Expanding—The Russell Motor Car Co. of Toronto will break ground at West Toronto for an addition to its plant consisting of a four-story machine shop 170 feet long by 60 feet wide. The cost of the building will be approximately $100,000. This increase to the plant of the company will result in the employment of about 200 more skilled workmen, and bring the total number of employees to considerably over 1,200. The payroll varies from $75,000 a month upward, according to the season. The output of the Russell factory has increased nearly 80 per cent over last year. The company has just completed and occupied a new office building which has been in course of construction for some months.

Wants Distributing Building—The Northwestern Overland Co. of Minneapolis is looking for a site for a large northwestern distributing building. John Willys, president of the Willys-Overland company, visited Minneapolis last week, but decision as to the new building has not been reached.

General Motors Moves—The change in location of the main office of the General Motors Co. from Detroit to Pontiac, Mich., took effect June 17. The factory organizations of Pontiac and Owosso remain intact with an executive direction from Pontiac. About 100 persons accompanied the offices to Pontiac from Detroit.

Invading Canada—The Sparks-Withington Co. of Jackson, Mich., has just completed arrangements to open a branch plant at Walkerville, Ont., to take care of the rapidly increasing Canadian orders. The new plant is to be of concrete and will begin operations immediately. In fact the machinery, equipment and stock already are on the ground. The new plant will manufacture parts and will be a duplicate of the one in Jackson.

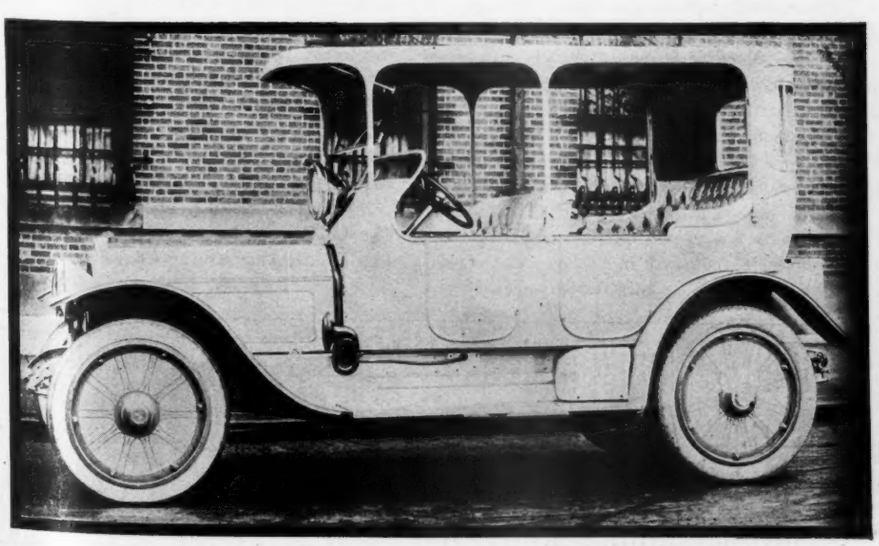
Suggest Cylinder-Making Plant—An effort is being made to interest the commercial club of Columbus, Ind., in a proposition to establish a factory for the manufacture of motor car cylinders in the buildings of the defunct Janney Mfg. Co. The new factory, it is said, would be known as the Caldwell Auto Parts Co., and those back of the project are J. I. Handley of Indianapolis, president of the American Motors Co. and of the Marion Motor Car Co.; Fletcher Goodwill, Detroit, Mich.; S. H. Penfield and Benjamin S. Dean, the last two named residing in Jamestown, N. Y. The proposition is that the commercial club shall sell 150 lots in an addition owned by George W. Caldwell at $300 each, the money raised to take the Janney Mfg. Co out of bankruptcy and pay all indebtedness, and Caldwell to turn over the property for an interest in the new company.

Stutz Reorganization Completed—Articles of incorporation for the reorganization of the Ideal Motor Car Co., Indianapolis, have been filed with the Indiana secretary of state. The authorized capitalization is $100,000 and the principal stockholders and directors are Harry C. Stutz, who becomes president under the reorganization; Henry F. Campbell, who is to be treasurer; William D. Myers, William F. Glickert and Everett L. Deupree.

Sheldon Wants De Tambles Receiver—Suit has been brought in the Madison county circuit court at Anderson, Ind., by the Sheldon Axle Co. of Indianapolis, asking that a receiver be appointed for the De Tambles Motor Co. of Anderson. The De Tambles company has asked for a change of venue to another county. Suit asking that a receiver be appointed for the De Tambles company was brought recently by the United States Ball Bearing Mfg. Co.

Duff Building New Factory—The Duff Mfg. Co. of Pittsburgh, Pa., manufacturer of Barrett lifting jacks, has purchased 5 acres of ground on Preble avenue, north side, Pittsburgh, and will start at once the erection of a new factory. The new site of the Duff factory, and the new site of the Pittsburgh Screw and Bolt Co., occupies the Riter-Conley company's property and adjacent acreage, totalling about 12 acres, and is close to the plants of the Pressed Steel Car Co., the Standard Sanitary Mfg. Co. and the Edith furnace of the Carnegie Steel Co. The construction work on the factory and office buildings will commence about July 1.

Peerless of Peculiar Construction—There has just been completed at the Boston Peerless branch a 38-six which is quite unlike any car that has ever been built before. The spokes of the wheels are entirely covered with metal disks, concave from hub to rim, and painted to represent the concealed spokes. There are openings in the covering to allow access to the tire valves. The dash is exceptionally high. It is made of aluminum and is integral with the front of the car. It is topped by a celluloid panel 6 inches high. A slight concavity in the center of the dash permits the mounting of an extra headlight so arranged that every time the steering wheel is turned the light turns. Thus, the light always points in the direction the car is turning. The top is stationary. It resembles a limousine without sides or windows. The supports of the top are hollow. They serve as water pipes, carrying off all rain and preventing it from dripping down. The windshield, when not in use, folds up under the front of the top. This construction was of course designed by the purchaser and carried out under his direction in the Peerless Boston branch.



PEERLESS WITH UNIQUE BODY BUILT IN BOSTON

Development Briefs

Ignition Spark Plug Makes Easy Installation of Acetylene Motor-Starter—Leyman Combination Pennant Holder and License Bracket—Speedograph

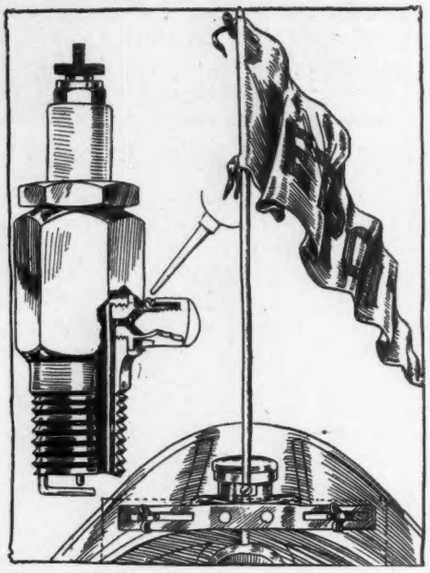


FIG. 1—CHAMPION PRIMING SPARK PLUG AND LEYMAN PENNANT HOLDER

Starter Spark Plug

THE rapid development of the gas type of self-starter has called attention to the marked difference in design of a certain class of cars having no petcocks on the cylinders. It is manifestly a very difficult and expensive job to bore a hole through the jacketed cylinder to admit the jet of gas which prepares the cylinder for starting, and there remained only one way of adapting the ignition starter to such cars—and that was through the spark plug.

The Ignition Starter Co., of Detroit, some time ago perfected a spark plug which combines in the plug and inlet for the acetylene gas used by the Disco starter.

The policy of the Ignition Starter Co. is rather unusual in regard to this new device. Although it controls basic patents on it, it has decided to allow its use by any manufacturers, regardless of whether they use the Disco self-starter or not. It is illustrated in Fig. 8.

Combined Spark Plug and Priming Cup

The Champion Spark Plug Co., Toledo, O., recently has brought out a plug with which is combined the function of a priming cup. This is illustrated in Fig. 1, and is designed to lead the gasoline to the most favorable position for firing when the motor is primed. In the illustration, it will be seen that there is a small needle valve and dust cap combined, by which the plug is closed to prevent loss of compression when the motor is running. From the chamber adjacent to the valve the gasoline is led to an annular chamber partially around the plug. This is open at the bottom and introduces the gasoline very close to the firing point of the spark plug. By opening the needle valve slightly gasoline may be injected from an oil can and passing through an opening in the spark plug shell enters the combustion chamber and expands right at the firing point of the plug.

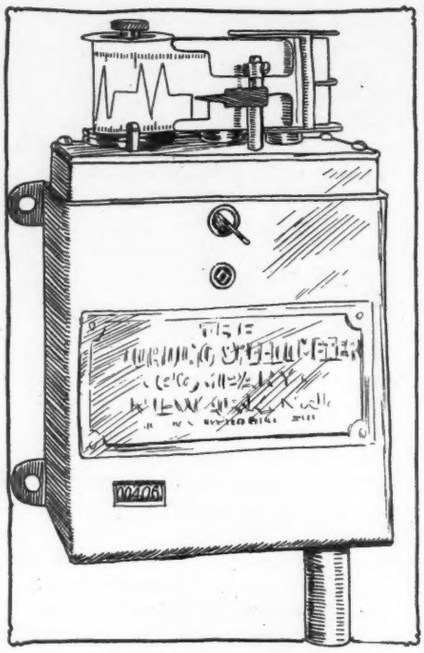


FIG. 2—RECORDING MECHANISM OF SPEEDOGRAPH

Speedograph for Taxicabs

Owners of cars in commercial service, and particularly in taxicab service, will find it of value to know just how many stops are made, how long the car is running continuously and what speeds are maintained while in service. To supply this information there has been developed by the Recording Speedometer Co., Newark,, N. J., an autographic speed recorder which automatically makes a record of the operation of the car. The device is illustrated in Fig. 2, in which the cover has been removed to illustrate the mechanism which makes the record. In Fig. 3 is reproduced a sample record taken by one of these instruments in service. The record is made upon a long tape operated by clock-work and upon it is printed the time of day in hours and minutes. A stylographic pen whose height upon the tape is proportionate to the speed at which the car is running bears upon the tape and consequently the line traced upon the ribbon shows the speed of the car at any time. The recording mechanism may be sealed so that it cannot be tampered with and combined with it is a mileage recorder or odometer, which acts as a check upon the autographic register. Such a device should prove valuable to the managers of truck delivery departments.

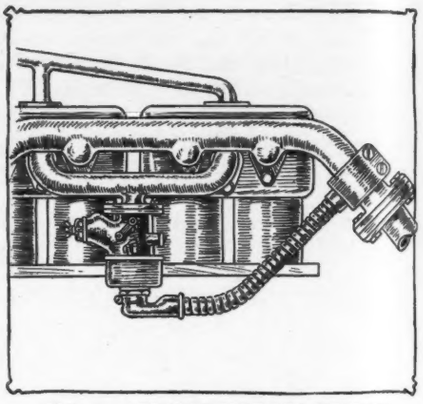


FIG. 4—COL-MAC HOT-AIR INTAKE FROM EXHAUST MANIFOLD

Fetterlock Gear Shift Lock

Protection of the car from theft has been the object of experiment of many designers. One of the latest devices of the kind is the Fetterlock, illustrated in Fig. 7, by which it is intended to prevent shifting of the gearset lever out of neutral position. The arrangement consists of a bar attached to an H quadrant over which slips an H-shaped lock whose upper legs slip on either side of the lever and prevent its being moved sideways to shift gears. The block is held on the bar by a padlock slipped through a hole in the bar. The Fetterlock is manufactured by the Auto Lock Co., Pittsburgh, Pa.

Col-Mac Hot-Air Intake

The advantages of introducing heated air to the air intake of the carbureter are widely recognized and there are numerous arrangements on the market for accomplishing this result. The latest of these is the Col-Mac exhaust hood brought out by the Breeze Carbureter Co., Newark, N. J. This is illustrated in Fig. 4 and consists

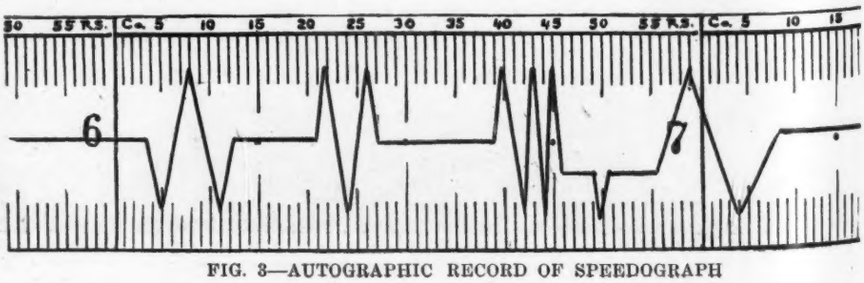


FIG. 3—AUTOGRAPHIC RECORD OF SPEEDOGRAPH

Novelties for Motoring

Gasoline Funnel a Self-Strainer —Fetterlock Gearshift Lever Lock—Champion Priming Spark Plug—Cotter-pin Pliers —New Headlight Governor

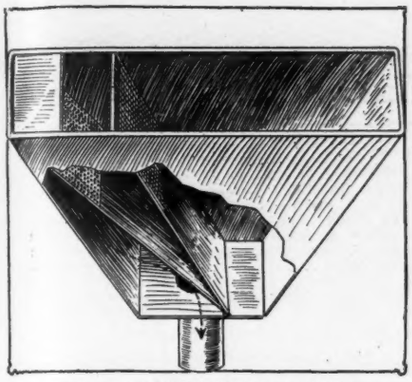


FIG 5—NO-SHAMMAY FUNNEL

of a flexible metallic tube to the upper end of which is attached a brass hood which fits around the exhaust pipe. The lower end is an L fitted with a clamp for attaching to the main air supply of the carbureter. The hood is constructed of spring brass, which easily takes the shape of an exhaust pipe and is held away from the pipe by brass pieces upset on either side of the tube so that the air is heated as it passes through the opening into the tube. Heating the air dries it and permits it to take up the gasoline spray more readily and facilitates proper mixture.

Cotter-Pin Pliers

One of the handy tools about the car is a pair of cotter-pin pliers. Such a tool is illustrated in Fig. 6, and is called the Mesnard combination cotter-pin pliers. It is made of special tool steel and spring tempered, will insert, spread and extract cotter-pins as its regular functions, while additional arrangements have been made for other purposes, among which are a gas tank wrench, a wire cutter and a screwdriver, shown in the illustration.

No-Shammy Funnel

The No-Shammy Funnel Co., Cleveland, O., is introducing a new gasoline funnel which is very appropriately named No-Shammy, meaning that no chamois-skin strainer is required to eliminate water and sediment from gasoline as it is poured into the tank of a car. No-Shammy funnels are made in all copper and any size, and Fig. 5 shows the principle. The gasoline is poured into the large top opening and the gasoline must flow from the surface through special copper screenings.

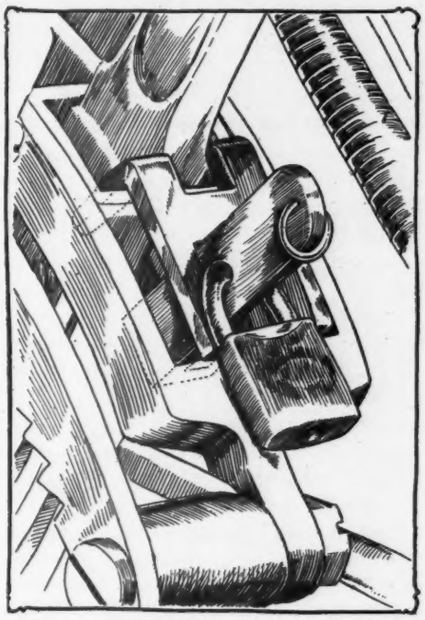


FIG. 7—FETTERLOCK GEARSHIFT LEVER LOCK

There are two walls of this screening, through which the gasoline must flow before reaching the outlet in the bottom of the funnel. This screen is so very fine, it is claimed, that not a particle of water can flow through it, although gasoline will readily flow. It is held that in the ordinary funnel with chamois-skin or screen in bottom for straining will not do this, as water goes to the bottom it is often forced through such strainers by the pressure of liquid above, but in the No-Shammy funnel there can be no such pressure, as the flow is always from top surface of funnel through screening and then down into spout of funnel as indicated by the curved line.

Combination Pennant Holder

The custom of tourists and motor club members of carrying pennants on the radiator has resulted in the production of a combination holder for pennants and for the license plate. This is designed to be attached to the radiator as illustrated at the right of Fig. 1. It is made in solid brass highly polished and is arranged to fit all radiators and license tags. The flag, or pennant staff, is held in place by a binding screw and may be lowered or raised to suit, or may be renewed altogether. It is the product of the Leyman Co., Cincinnati, O.

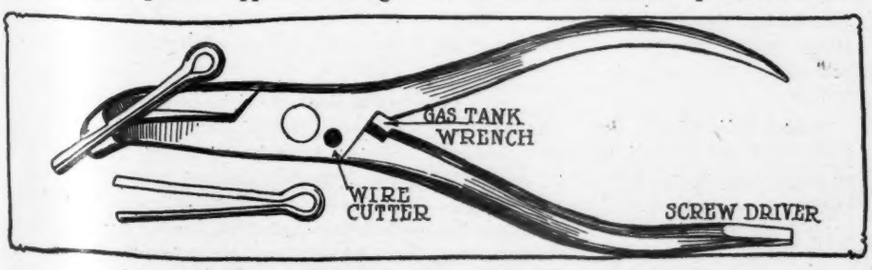


FIG. 6—COMBINATION COTTER-PIN PLIERS

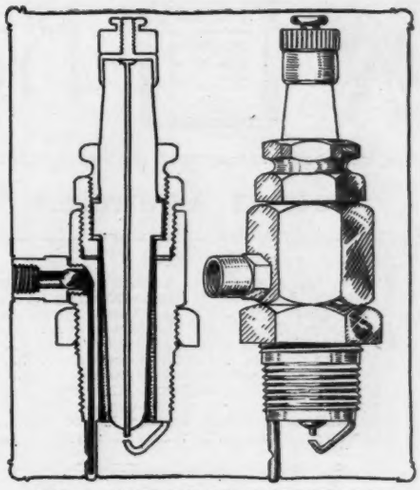


FIG. 8—NEW STARTER SPARK PLUG

Automatic Headlight Governor

With the coming of acetylene self-starters the need for regulating the pressure of acetylene gas in the storage tank was emphasized. Among the pressure regulating devices the latest is that of James A. Gillespie Mfg. Co., Chicago, Ill., and known as the automatic headlight governor. This can be adjusted to maintain any desired flame at the burner. It saves the regulation of the headlight every time the lamps are lighted and automatically reduces the tank pressure to 2 ounces.

New Tire Preservative

A waterproof liquid composition for preserving the tires is marketed under the name of New Tyr. This is intended to penetrate into the fabric to prevent its being injured by water and dirt. It also fills up air holes to prevent sand blisters and keep the rubber from cracking and may be used as well for improving the appearance of the tire and rubber matting. It is claimed that the dressing dries in 20 minutes.

Touring Tents Made in Little Rock

The Quapaw touring tents mentioned in reply to an inquirer in the Readers' Clearing House columns of Motor Age, June 6, are being made by John R. Fordyce, of the Thomas-Fordyce Co., Little Rock, Ark. These tents are made of khaki cloth and weigh about 7 pounds. They can be carried rolled up on the top in the place of side curtains or can be rolled up with the canvas cots and carried on the running board of the car. Double-deck cots are used with these tents, giving sleeping accommodations for four people.

Brief Business Announcements

Recent Agencies Appointed by Pleasure Car Manufacturers

Town	Agent	Car
Augustine, Fla.	St. Augustine Machine Works	Cole
Bamberg, S. C.	Decania Dowling	Franklin
Cannington, Ont.	F. A. Fitzsimmons	G. J. G.
Columbus, O.	M. P. Murnan	Alco
Deland, Fla.	R. H. Smith	Cole
Erie, Pa.	Potter-Burgess	Cole
Follansbee, W. Va.	H. B. Mahon	Cole
Gorham, N. H.	William E. Morse	Cole
Kankakee, Ill.	Lincoln Garage and Repair Co.	Franklin
Texarkana, Ark.	Arkansas Motor Co.	Cole
Leesburg, Fla.	Sanders & Dutton	Cole
Macon, Ga.	Cole Macon Agency	Cole
Nashville, Tenn.	Nashville Saddlery Co.	Cole
New Britain, Conn.	Arron G. Cohen	Ford
Nokomis, Ill.	Harvey Case	Cole
Paducah, Ky.	J. A. Ruy & Sons	Cole
Rushville, Ind.	Sanitary House Cleaning Co.	Franklin
Sacramento, Cal.	Stanley Bias	Franklin
Strong, Me.	C. G. Starbird	Cole
St. Louis, Mo.	Southern Auto and Machinery Co.	Herreshoff
Toronto, Ont.	L. M. Rathburn	Abbott-Detroit
Wilbur, Wash.	John Morkey	Everitt

MINNEAPOLIS, Minn.—The Searchlight Gas Co. has established a branch in Minneapolis.

Montreal, Can.—The Firestone Tire and Rubber Co. has opened a selling agency in Montreal.

Ottawa, Can.—The Ottawa-Beach Motor Co. has taken on the representation of the American.

Oakland, Cal.—A service branch has been opened in this city by the Franklin Automobile Co. Peter Callender is in charge.

Baltimore, Md.—John Dudley, of Hughesville, Md., has been appointed agent for the Krit car in Charles and St. Mary's counties.

Washington, Pa.—The Washington Automobile Co. has been completely reorganized. Harry M. Newman of Pittsburgh assumes an interest in the firm.

Portland, Ore.—G. D. Rushmore last week became sales manager for Neate & McCarthy, distributors for the Locomobile, Hudson and Ohio pleasure cars and Kelly trucks.

Cleveland, O.—Papers have been filed with the secretary of state increasing the capital stock of the Park Motor Car Co., of Cleveland, from $10,000 to $15,000. P. J. Brown is president and P. C. Shea secretary.

Winnipeg—O. H. Digman has been appointed to succeed A. C. Smith as manager of the tire department of the Western Rubber and Apparatus Co., Limited, Winnipeg. The firm handles Fisk and Kelly-Springfield tires.

Detroit, Mich.—H. R. Viot, former purchasing agent of the Everitt Motor Car Co., has joined the forces of the Oakland company at Pontiac. Prior to his connection with the Everitt, Mr. Viot was with the Chalmers.

Minneapolis, Minn.—Fred H. Day and Harry J. Murphy have opened a new electric service garage. It is named the Owl. The building is two stories, 70 feet square, with capacity of 150 cars. The electric service garage of the Kemp Brothers Automobile Co., two blocks from the Owl, will be completed by July 15.

Tacoma, Wash.—The United Automobile Co. last week changed its name and hereafter will be known as the Northwest Motors Co.

Coshocton, O.—Loos & Sons have moved their garage and repair shop to a new location on Third street, where additional space is provided.

Columbus, O.—The McCann-Shaw Mfg. Co. has located a plant at 47 Vince street for the manufacture of glass for motor cars as well as other things.

New Britain, Conn.—Aaron G. Cohen, who is associated in the motor car business with Frank M. Zimmerman, has bought the Ford agency from H. B. Freeman of Hartford.

Saskatoon, Can.—Hoffman & Horan is the style of a new firm which has commenced business in Saskatoon, Sask., handling R-C-H and Alpena cars. They are building a garage at 251 Third avenue, south.

New Haven, Conn.—The new garage for the Howards company is about ready for occupancy, giving the city one of the finest garages in the state, with more than 3,500 feet of floor space. This company handles the Kisselkar in New Haven.

Galt, Ont.—The Western Ontario Sales Co., of which W. H. O. Brown is president, has been incorporated. This company handles the Russell, Reo and Ford cars for local territory, while the business of Hunter's Garage, Limited, has been taken over also.

Kenosha, Wis.—The Motor Transportation Co. has been organized by Richard H. Welles, Peter Fischer, Jr., and Albert Tunck, to establish and operate a motor truck line for passenger and freight transportation. The company is capitalized at $25,000.

Indianapolis, Ind.—Ray Leeman, formerly advertising and publicity manager of the Overland Automobile Sales Co., of Dallas, Tex., and afterward branch manager for the Goodyear Tire and Rubber Co. in Houston and San Antonio, Tex., has joined the forces of the Henderson Motor Car Co., of Indianapolis, as manager of the newspaper department.

Utica, N. Y.—The Crim-Bronner Auto Co. has moved from 7 Court street to 213-215 Park avenue into a new salesroom and service station.

Chicago—The Sturdy Mfg. Co. has granted the Cedar Rapids Sales Co., of Cedar Rapids, Ia., the exclusive sales right of Sturdy plugs in the state of Iowa.

Swift Current, Sask., Can.—J. G. Maxwell, who handled the Cole at Calgary, Alberta, some time ago, has moved to Swift Current, and has made application to handle the Cole there.

Spokane, Wash.—The Snell Motor Co. has been organized by Lewis Snell and William R. Scott. The company has been organized for $100,000 under the laws of the state of Washington.

Flint, Mich.—The Durant-Dort Carriage Co., which now manufactures a motor truck, will be in the field next year with a popular-priced six-cylinder passenger car, according to J. Dallas Dort.

Bowling Green, O.—W. P. Abbey recently resigned as special representative of the Gramm Motor Truck Co., of Lima, O., to succeed C. M. Rogers as sales manager of the Bowling Green Motor Car Co.

San Francisco, Cal.—The Speedwell Motor Car Co., of Dayton, Ohio, has taken over the San Francisco Speedwell motor agency and made it a branch. R. Harry Croninger will be manager. A new building is now under construction for this company.

New York—Howard E. Wagner, sales manager for Wyckoff, Church & Partridge, has accepted a similar position with the Buffalo Electric Vehicle Co., of Buffalo, N. Y., which is a consolidation of various electric concerns of Buffalo, including the Babcock.

Findlay, O.—The Adams Brothers Co., manufacturer of Adams trucks, has opened offices at 68 Broad street, New York, to look after its foreign business. Deihl & Teichner, 339 Eleventh street, Oakland, Cal., have taken on the agency for Adams trucks at that point. John A. Meeks, 1719 Oxford avenue, Los Angeles, Cal., has

taken on the agency for Adams trucks for southern California.

St. Louis, Mo.—The Locomobile Co. of America, it is said, will soon open a branch here.

Utica, N. Y.—The Mack Motor Truck Co. has opened a local branch office at 33 Stewart building.

Louisville, Ky.—W. H. Speck is the new manager of the Dunham Auto Co., agent for the Velie. He succeeds W. N. Morrill, who has resigned.

St. Louis, Mo.—The Essenkay Sales Co., J. B. Kavanaugh, manager, has taken a salesroom at 3029 Locust street and will handle the Essenkay tire-filler from here.

Cuero, Texas—The R. C. Flick Auto Co. has been organized here with a capital stock of $10,000. The incorporators are R. C. Flick, R. F. Flick and N. M. Crane.

Syracuse, N. Y.—Thomas L. Briggs, for the past 2 years assistant advertising manager with the Franklin Automobile Co., has resigned to accept a position on the advertising staff of the Remington Arms-Metallic Cartridge Co., associating himself with the New York office.

Minneapolis, Minn.—W. R. Spencer, vice-president and general manager for the Studebaker Corporation branch, has assumed charge of the motor car department, following the resignation of C. R. Newby, resigned, to go to Detroit.

Columbus, O.—W. C. Jaynes and W. C. Jaynes, Jr., have opened a tire agency and vulcanizing plant at Chestnut and Front streets under the name of the Columbus Auto Tire Co. The concern has the agency for the Pennsylvania tire.

Portland, Ore.—Another new member has been added to the firm of C. L. Boss & Co., of Portland, and a change has been made in the personnel of the concern handling the Stearns. Oscar Closset became owner of half of C. A. Eastman's interests in the company and C. L. Boss became possessor of the shares of George Steel in the Stearns-Knight Auto Co. Hereafter the latter firm will be known as the C. A. Eastman Co.

Winnipeg—The Commercial Basis Tire Co., Limited, has removed to its new offices, 65-67 Victoria street.

St. Louis, Mo.—The General Motors Truck Co. has opened a branch and service station with O. E. Stoll in charge.

Ludington, Mich.—Donald MacVichie has purchased the garage of the Ludington Auto and Supply Co. formerly owned by A. F. Keseberg. MacVichie takes over everything but Keseberg's motor car agency.

Baltimore, Md.—The Detroiter will be handled in Maryland, Virginia and West Virginia by R. H. Croxton, who was formerly connected with the Ford Auto Co. Mr. Croxton will open offices and salesrooms at 2207-2209 Madison avenue.

Chicago—The Velie Chicago branch has closed an agency with the Auto Sales Co., with headquarters in Cleveland, O., for the following territory: Cuyahoga, Lake, Ashtabula, Trumbell, Geauga, Medina, Loraine, Erie and Sandusky counties, Ohio.

Chicago—Edward Wells has resigned his position as assistant sales manager of the E. R. Thomas Motor Car Co. in order to engage in the motor car business direct. He will assume control of the State garage, 119 East Third street, Jamestown, N. Y., and will handle Thomas cars.

Spokane, Wash.—John J. Ehlinger has started the construction of an $8,000 brick garage at 1421 Second avenue. The building will occupy a ground space of 50 by 120 and will be a one-story structure. The building will be occupied by the Winton, which has leased it for a period of 5 years.

Detroit, Mich.—The local agency for the Chalmers line has been placed with the Newmann-Lane Co., Woodward avenue near Piquette. The Chalmers abandons its local branch and the proposition will now be handled locally on an agency basis. The Newmann-Lane Co. secures several counties of Michigan as additional territory. The firm is abandoning the Stoddard-Dayton line, which it has handled for 5 years.

Walkerville, Can.—Frank E. Fisher has been appointed manager of the Studebaker Corporation of Canada, Limited.

Buffalo, N. Y.—The Chevrolet-Detroit factory will open a branch office here this week in the Burrell building. J. F. Rath is local sales manager for the Chevrolet.

Bridgeport, Conn.—The Locomobile Co. of America has appointed Fred P. Colver to take charge of the new truck department at the New York branch. Mr. Colver will have charge of all truck business, not only in the New York district, but also in the surrounding territory.

Portland, Ore.—The Multnomah county agency for the Velie has been given to the Laurel Rose Automobile Agency of Portland. The men behind it are E. C. Brock and E. B. Catlin. They have established a garage and repair shop at East Burnside and Twenty-seventh streets.

Portland, Ore.—L. A. Harding, Oregon distributor for the Alco trucks, has recently taken the large building on Chapman street formerly occupied by the Portland Taxicab Co. H. H. Hunter, formerly with the American Locomotive works, will be associated with him.

York, Pa.—B. J. Barrier, formerly southern representative for the Schacht Motor Car Co., will be with the Kline Motor Car Corporation for the coming season. Mr. Barrier will have charge of the sales for this company in Alabama, Mississippi, Louisiana, Texas, Oklahoma, Arkansas and Tennessee.

Lockport, N. Y.—The Covert Motor Vehicle Co. has purchased land adjoining its plant for the erection of a large addition which will triple the size of the plant. The work of construction will begin at once. This concern already employs 200 skilled men for the manufacture of axles for motor cars.

Recent Incorporations

Akron, O.—Hadfield Rubber Co., capital stock, $10,000; to manufacture rubber articles; incorporators, John Hadfield, Hugh R. Hadfield, Maud M. Hadfield, Ida Hadfield, Joe Hadfield.

Allentown, Pa.—Penn Unit Mfg. Co., capital stock, $500,000; to manufacture commercial vehicles.

Asheville, N. C.—Auto Sales Co., capital stock, $25,000; incorporators, E. T. James, J. G. Weber.

Auburn, R. I.—Auburn Wheel and Mfg. Co., capital stock, $60,000; to manufacture motor car wheels and parts; directors, C. Wilkinson, F. Edgeworth, B. T. Egan.

Boston, Mass.—Aristos Co., capital stock, $1,000; to sell motor cars on commission; directors, C. D. Knapp, A. L. Harwood, Jr., T. D. Luce, Jr.

Boston, Mass.—Baxter Side Car Co., capital stock, $20,000; to deal in motor vehicles; directors, W. P. Everts, J. R. Lazenby, E. T. Roche.

Buffalo, N. Y.—Stewart Motor Corporation, capital stock $250,000; motor car business; incorporators, C. J. Bork, B. L. Fischer, W. F. Strasmer.

Camden, N. J.—Automobile Sales Corporation, capital stock, $30,000; general motor car business; incorporators, P. L. Neel, J. R. Shoch, H. R. Shoch.

Chicago—Chicago Tire Filling Co., capital stock, $2,500; to manufacture and deal in tire filling compounds; incorporators, E. W. Ballard, F. P. Updike, C. L. Jackson.

Chicago—Windsor Park Garage, capital stock, $2,000; general motor car and garage business; incorporators, S. E. Levy, J. D. Irose, W. A. Rooney.

Chicago—Scientific Auto Tube Co., capital stock, $200,000; to manufacture motor car specialties; incorporators, R. E. Cruzen, H. W. Lewis, H. V. Shepard.

Cleveland, O.—Park Motor Car Co., capital stock, $10,000.

East Palestine, O.—O and H Tire Co., capital stock, $5,000; to manufacture and deal in, and import tires; incorporators, J. A. Oatsdean, A. L. Shumate, C. A. Oatsdean, C. F. Hanoble, A. S. Mauk.

Henderson, Ky.—Park Garage Co., capital stock, $1,200; incorporators, J. L. Jones, T. E. Jones, J. R. Sigler.

Indianapolis, Ind.—Central Garage Co., capital stock, $5,000; to deal in motor cars; directors, Walter Howe, Kirke Howe, H. R. Sterling.

Lansing, Mich.—Page Auto Hoist and Specialty Co., capital stock, $50,000.

Louisville, Ky.—Punctureless Tire Co., capital stock, $5,000; incorporators, A. T. Murphy, J. H. O'Neil, J. S. Hobson.

Memphis, Tenn.—Fiat Motor Car Co., capital stock, $20,000; incorporators, O. C. Fleumer, N. E. Taylor.

Niagara Falls, N. Y.—Esco Sales Co., capital stock, $10,000; to manufacture and deal in motor car devices; incorporators, J. Doversmith, S. B. Parker, C. Gombert.

Newark, N. J.—Electrical Repair and Motor Co., capital stock, $10,000; incorporators, J. G. Bender, H. C. Heidrich, K. M. Heidrich.

Newark, N. J.—Newark Auto Truck and Mfg. Co., capital stock, $500,000; to manufacture trucks; incorporators, L. W. Babbage, H. H. Poole, J. T. Walsh.

New York—United Electrical Supply Co., capital stock, $100,000; to manufacture mechanical and electrical appliances; incorporators, J. W. Whitehead, A. H. Whitehead, M. E. Cummings.

New York—Harlem River Garage and Repair Co., capital stock, $900; incorporators, E. Meltzer, F. D. Tice, W. T. Hookey.

New York—Henry Engineering Co., capital stock, $20,000; to design and manufacture parts for motor cars; incorporators, G. L. Henry, H. W. Badenhausen, M. F. Hill.

Plymouth, Mass.—Plymouth Auto Co., capital stock, $2,000; directors, H. F. Eaton, H. M. Eaton, C. W. Finney.

Syracuse, N. Y.—Mohawk Tire Co., capital stock, $6,600; to deal in tires; incorporators, H. J. Moses, W. G. Rice, C. B. Rice.

Tulsa, Okla.—Oklahoma Motor Truck Co., capital stock, $10,000; incorporators, P. E. Haworth, P. W. Herman, H. Spencer Cox.

Legal Lights and Side Lights

MUST STOP FOR STREET CARS

CHICAGO'S city council, in its efforts to minimize motor car accidents, has just passed an ordinance, which is up to the mayor for his signature, which is designed to compel drivers of motor cars and riders of motor cycles to stop at all street crossings when street cars have stopped to take on or discharge passengers. Operators of motor-driven vehicles are called upon to halt within not less than 10 feet of street cars that have stopped.

The council also has added to the ordinance a clause which prohibits the manipulation of any rear lights from the seats of a motor car. If this is enforced it means the driver must get out of his car in order to light or extinguish his tail light, the idea being that it will prevent an operator from turning out his light after he has become involved in an accident in order to escape detection.

LIABILITY OF A FATHER

Liability of a father for the results of an accident occurring during the use of the family's car under the handling of a minor member of the family has been often debated from various viewpoints. There are several diverse opinions that have been rendered by state courts, but a recent Kentucky case, Stowe vs. Morris, draws a distinct line that may be followed as a precedent to govern the decision of cases brought under similar conditions.

The rule, as construed by the court of appeals of Kentucky in this case, is that where a car is used generally for the pleasure and convenience of the family and where no specified or implied knowledge of a particular trip is shown to have been had by the father, that the father is not liable for damages resulting from the tortious acts of the minor member of the family who drove the car at the time the accident occurred.

In a Massachusetts case, where the facts were somewhat different, the court held in Smith vs. Jordan that where a son performed the duties of a paid chauffeur, even though he received no compensation in money for so doing, that the father was liable for the results of accident.

In both cases the courts held that the mere act of the father in generally allowing his son to drive should not be construed as turning him loose upon the public with a dangerous agency.

In the Kentucky case it was shown that the son of the defendant, 18 years old, invited his sister and another young woman to go riding and during the ride the plaintiff was injured. The findings of the court absolved the father from liability and placed it upon the son.

In the Massachusetts case, the father had given specific permission to his wife to use the car whenever she wished and had instructed his son, 20 years old, to take care of his mother on such rides. There, the court held, the son was not acting on his own authority, but on the orders of his father and that he was in fact the agent of his father. Therefore, the father was held liable for damages resulting from the operation of the car.

Of course, neither of these decisions has any bearing upon the liability of the owner of a car for the acts of an authorized paid representative, acting within the scope of his duties.

PITTSBURGH LEGISLATION PENDING

Two ordinances directed against motorists have been introduced into the city council of Pittsburgh and have met with such violent protests that public hearings will be held before final action is taken.

Owing to the construction work now in progress in connection with cutting down "the hump" in the center of the downtown district, an ordinance has been introduced limiting motorists in parking their machines along the downtown curbs, to 15 minutes. Department store managers and shop keepers generally have entered a protest on the ground that shoppers cannot be expected to limit their store visits to 15 minutes. It is further declared that the establishment of such restriction would result in instructing chauffeurs to move their machines a few inches, or exchange places after each 15-minute interval.

The second ordinance now pending provides for a fine of $10 or 30 days in jail for any motorist who has no muffler on his car or who uses a cutout as a signal.

BAY STATE SESSION ENDS

The Massachusetts legislature was prorogued June 14 by Governor Foss after a series of wrangles that finally led to open hostility between the governor on one hand and the house of representatives and senate on the other, and which had a direct bearing favorably upon motor legislation.

In the closing days of the session, when the senate refused to adopt an order for a recess committee to consider motor taxation and truck legislation, Governor Foss, at the instance of Mayor Fitzgerald of Boston, sent a special message to the legislature, urging it to pass some legislation to increase the revenue from motor cars. When it was received in the legislature the message was quickly thrown aside, not being accorded even the usual courtesy of being referred to a committee, even though friends of the governor moved for such an action. It was one of the severest rebuffs ever given a governor.

This legislation was one of the big fights of the year, for behind the two measures, one aimed at increasing the fees and the other to legislate the trucks off the road under the guise of highway preservation, were the combined forces of the governor, the highway commission, Mayor Fitzgerald of Boston and all but one member of the committee on roads and bridges of the legislature. Also several members of the house were ready to help out.

Looking over the results accomplished by the legislature, there was very little done in the way of motor legislation. One bill that caused a fight was designed to rule all bulb horns off cars, substituting horns giving a harsh, abrupt sound. This got into the house against an unfavorable committee report and secured its regular readings, but after quite a fight in which there was much talk of lobbying it was killed. The bill to make all chauffeurs serve an apprenticeship of 18 months was thrown out. The measure making out a prima facie case against an owner in case of accident if the numbers were secured, and allowing judgment by default nearly got by again, being defeated finally. The usual freak bills got little consideration.

The recommendation of the highway commission that it be given $1,000,000 a year for 5 years for road construction was sidetracked because it was expected that the increased fees from the motor cars under the proposed new legislation would give the commission a lot of extra money that could be used for construction. But the hoped-for bills not being passed the commission will have to get busy with what it gets this year and see what it may do. Under the law it cannot spend the money for construction, as it must be used for maintenance, strictly speaking, and as there will be much more money than is needed for maintenance some of it may go for construction. Even without an increased fee the state will get more than $100,000 more than it did last year when the fees ran to nearly $500,000, showing that there was no reason for any increased fee this year.

MAIL CARRIER NOT EXEMPT

Isaac Judy, who carried the United States mail between Sheldon and Effner in Iroquois county, Illinois, has declined to take out a license for the motor car that he has been using to handle the mail, claiming that a car when used for the government purposes was exempt from the state tax. He was arrested, charged with failure to take out the required permit, the state's attorney alleging that he used the car for pleasure purposes as well as carrying the mail. After a change of venue, Judy finally decided to plead guilty to the charge and paid a fine of $25 and cost, after which he was released.